

Avancement Stage

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1 Packages

► Code

2 Fonctions

► Code

3 Importation de la BDD

- Importation de la BDD LandWorm_dataset_site.xlsx version V1.5

► Code

la BDD contient **7919** lignes et **601** colonnes

- Conversion des colonnes au bon format

► Code

4 Explorations

- TC = Taux de Completion

4.1 Colonnes complets

Variables		TC
74	ID	100%

4.2 Colonnes non complets

	Variables	TC
75	Protocole	99.9%
1	Programme	96.7%
2	Annee	96.7%
4	ID_Site	96.7%
8	gps_x	93.2%
9	gps_y	93.2%
77	Total_AB	92.9%
79	AB_AD	85.7%

Variables		TC
80	AB_JV	85.7%
81	AB_SA	85.7%
6011	Total	83.5%
98	AB_Aporrectodea_rosea	83.4%
83	AB_Allolobophora_chlorotica_chlorotica	81.2%
12	clcm_lvl2	81.1%
144	BM_Aporrectodea_rosea	81%
117	AB_Lumbricus_terrestris	79.2%
108	AB_Lumbricus_castaneus	78.8%
120	AB_Octolasion_cyaneum	78.3%

	Variables	TC
166	BM_Octolasion_cyaneum	77.9%
88	AB_Aporrectodea_caliginosa	77%
11	clcm_lvl1	76.8%
92	AB_Aporrectodea_giardi	76.4%
86	AB_Allolobophora_icterica	76.2%
154	BM_Lumbricus_castaneus	76%
132	BM_Allolobophora_icterica	75.1%
126	AB_Satchellius_mammalis	74.8%
138	BM_Aporrectodea_giardi	74.7%
163	BM_Lumbricus_terrestris	74.6%

	Variables	TC
172	BM_Satchellius_mammalis	73.9%
13	clcm_lvl3	73.2%
97	AB_Aporrectodea_nocturna	72.3%
95	AB_Aporrectodea_longa_longa	71.1%
143	BM_Aporrectodea_nocturna	70.9%
119	AB_Murchieona_muldali	70.4%
165	BM_Murchieona_muldali	70.2%
129	BM_Allolobophora_chlorotica_chlorotica	70%
90	AB_Aporrectodea_caliginosa_meridionalis	68.9%
134	BM_Aporrectodea_caliginosa	68.7%

	Variables	TC
115	AB_Lumbricus_rubellus_rubellus	67.5%
136	BM_Aporrectodea_caliginosa_meridionalis	67.5%
141	BM_Aporrectodea_longa_longa	67.3%
161	BM_Lumbricus_rubellus_rubellus	66.8%
114	AB_Lumbricus_rubellus_castanoides	64.7%
160	BM_Lumbricus_rubellus_castanoides	64.5%
116	AB_Lumbricus_sp	64%
162	BM_Lumbricus_sp	63.4%
100	AB_Aporrectodea_sp	61.5%
106	AB_indéterminable	61.1%

Variables		TC
146	BM_Aporrectodea_sp	61.1%
152	BM_indéterminable	61.1%
122	AB_Octolasion_sp	60.4%
168	BM_Octolasion_sp	60.4%
112	AB_Lumbricus_friendi	60.2%
111	AB_Lumbricus_festivus	58.2%
157	BM_Lumbricus_festivus	58.1%
91	AB_Aporrectodea_cupulifera	57.9%
137	BM_Aporrectodea_cupulifera	57.9%
158	BM_Lumbricus_friendi	57.8%

	Variables	TC
85	AB_Allolobophora_chlorotica_postepheba	56.8%
176	AB_Eiseniella_tetraedra	56.6%
131	BM_Allolobophora_chlorotica_postepheba	56.5%
32	clay	55.8%
180	BM_Eiseniella_tetraedra	55.4%
76	Code_Parcelle	54.8%
110	AB_Lumbricus_centralis	54.1%
103	AB_Dendrobaena_sp	54%
149	BM_Dendrobaena_sp	54%
156	BM_Lumbricus_centralis	53.4%

	Variables	TC
26	fine_sand	49.9%
27	coarse_sand	49.9%
29	fine_silt	49.9%
30	coarse_silt	49.9%
16	ph_eau	48.5%
78	BM_tot	48.5%
93	AB_Aporrectodea_indéterminable	48.5%
139	BM_Aporrectodea_indéterminable	48.3%
121	AB_Octolasion_lacteum_lacteum	48.1%
167	BM_Octolasion_lacteum_lacteum	48.1%

Variables		TC
105	AB_Eisenia_fetida	48%
151	BM_Eisenia_fetida	47.9%
109	AB_Lumbricus_castaneus_disjonctus	47.3%
155	BM_Lumbricus_castaneus_disjonctus	47.1%
21	om	46.8%
240	AB_Microsclex_phosphoreus	46.7%
242	BM_Microsclex_phosphoreus	46.7%
96	AB_Aporrectodea_longa_ripicola	43.7%
142	BM_Aporrectodea_longa_ripicola	43.6%
187	AB_Eisenia_andrei	43.4%

Variables		TC
194	BM_Eisenia_andrei	43.4%
118	AB_Microsclex_dubius	42.4%
164	BM_Microsclex_dubius	42.4%
19	n_tot	40.9%
18	c_org	40.1%
94	AB_Aporrectodea_longa	38.9%
140	BM_Aporrectodea_longa	38.7%
87	AB_Allolobophora_sp	36.5%
133	BM_Allolobophora_sp	36.3%
186	AB_Dendrodrilus_rubidus	35.8%

Variables		TC
193	BM_Dendrodrilus_rubidus	35.8%
308	AB_Lumbricus_friendi_lineatus	35.5%
315	BM_Lumbricus_friendi_lineatus	35.4%
128	AB_Scherotheca_sp	34.3%
174	BM_Scherotheca_sp	34.3%
239	AB_Aporrectodea_limicola	34.1%
241	BM_Aporrectodea_limicola	34.1%
125	AB_Prosellodrilus_indéterminable	33.9%
171	BM_Prosellodrilus_indéterminable	33.8%
309	AB_Octodrilus_complanatus	32.9%

	Variables	TC
204	AB_Scherotheca_savignyi_indéterminable	32.8%
208	BM_Scherotheca_savignyi_indéterminable	32.8%
316	BM_Octodrilus_complanatus	32.5%
101	AB_Aporrectodea_trapezoides	31.9%
14	land_cover_detail	31.7%
147	BM_Aporrectodea_trapezoides	31.7%
197	AB_Eisenia_veneta	31.2%
199	BM_Eisenia_veneta	31.2%
107	AB_Indéterminable	31%
153	BM_Indéterminable	31%

	Variables	TC
472	AB_Allolobophora_burgondiae	30.6%
10	Altitude	30.5%
474	BM_Allolobophora_burgondiae	30.4%
123	AB_Prosellodrilus_amplisetosus_amplisetosus	30%
169	BM_Prosellodrilus_amplisetosus_amplisetosus	30%
473	AB_Scherotheca_savignyi_savignyi	30%
475	BM_Scherotheca_savignyi_savignyi	30%
185	AB_Dendrobaena_octaedra	29.2%
192	BM_Dendrobaena_octaedra	28.9%
198	AB_Proctodrilus_antipai	28.5%

Variables		TC
200	BM_Proctodrilus_antipai	28.3%
102	AB_Aporrectodea_tuberculata	28.1%
148	BM_Aporrectodea_tuberculata	28.1%
335	AB_Bimastos_eiseni	26.9%
370	BM_Bimastos_eiseni	26.8%
219	AB_Lumbricus_rubellus_friendoides	26.4%
477	AB_Scherotheca_aquitana	26.4%
479	BM_Scherotheca_aquitana	26.4%
232	BM_Lumbricus_rubellus_friendoides	26.3%
462	AB_Eisenia_fetida_indéterminable	25.2%

Variables		TC
464	BM_Eisenia_fetida_indéterminable	25.2%
28	sand	23.1%
31	silt	23.1%
33	type_tillage	21.4%
476	AB_Aporrectodea_rubra_acidicola	20.3%
478	BM_Aporrectodea_rubra_acidicola	20.3%
5	Modalite	19.8%
113	AB_Lumbricus_meliboeus	17.7%
159	BM_Lumbricus_meliboeus	17.7%
6	Bloc	17.3%

	Variables	TC
3	Date_Prelevement	17%
104	AB_Dendrodrilus_rubidus_subrubicundus	17%
150	BM_Dendrodrilus_rubidus_subrubicundus	17%
89	AB_Aporrectodea_caliginosa_indéterminable	16.8%
135	BM_Aporrectodea_caliginosa_indéterminable	16.3%
184	AB_Dendrobaena_attemsi	16.2%
191	BM_Dendrobaena_attemsi	16.2%
189	AB_Proctodrilus_antipai_antipai	15.8%
196	BM_Proctodrilus_antipai_antipai	15.8%
468	AB_Prosellodrilus_occidentalis_occidentalis	15.1%

Variables		TC
471	BM_Proseilodrilus_occidentalis_occidentalis	15.1%
82	AB_STAD_X	14.9%
480	AB_Hemigastrodrilus_monicae	14.9%
484	AB_Proseilodrilus_praticola	14.9%
486	BM_Hemigastrodrilus_monicae	14.9%
490	BM_Proseilodrilus_praticola	14.9%
38	fertilisation	14.8%
217	AB_Proseilodrilus_fragilis_fragilis	14.7%
230	BM_Proseilodrilus_fragilis_fragilis	14.7%
7	postal_code	14.5%

Variables		TC
124	AB_Prosellodrilus_fragilis_indéterminable	13.4%
170	BM_Prosellodrilus_fragilis_indéterminable	13.4%
20	c/n	13%
183	AB_Avelona_ligra	12.2%
190	BM_Avelona_ligra	12.1%
17	c_tot	11.3%
483	AB_Prosellodrilus_amplisetosus	10.8%
489	BM_Prosellodrilus_amplisetosus	10.8%
372	AB_Allolobophora.chlorotica	10.7%
373	AB_Allolobophora.cupulifera	10.7%

Variables		TC
374	AB_Allolobophoridella.eiseni	10.7%
375	AB_Aporrectodea	10.7%
376	AB_Aporrectodea.caliginosa	10.7%
377	AB_Aporrectodea.giardi	10.7%
378	AB_Aporrectodea.icterica	10.7%
379	AB_Aporrectodea.longa	10.7%
380	AB_Aporrectodea.rosea	10.7%
381	AB_Aporrectodea.rubra	10.7%
382	AB_Aporrectodea.terrestris	10.7%
383	AB_Aporrectodea.trapezoides	10.7%

	Variables	TC
384	AB_Bimastos.eiseni	10.7%
385	AB_Dendrobaena	10.7%
386	AB_Dendrobaena.alpina	10.7%
387	AB_Dendrobaena.alpina.juvenile	10.7%
388	AB_Dendrobaena.mammalis	10.7%
389	AB_Dendrobaena.octaedra	10.7%
390	AB_Dendrodrilus.rubidus	10.7%
391	AB_Dendrodrilus.subrubicundus	10.7%
392	AB_Eiseniella.tetraedra.	10.7%
393	AB_Lumbricidae	10.7%

	Variables	TC
394	AB_Lumbricus	10.7%
395	AB_Lumbricus.castaneus	10.7%
396	AB_Lumbricus.centralis	10.7%
397	AB_Lumbricus.festivus	10.7%
398	AB_Lumbricus.friendi.friendi	10.7%
399	AB_Lumbricus.meliboeus	10.7%
400	AB_Lumbricus.rubellus.castanoides	10.7%
401	AB_Lumbricus.rubellus.rubellus	10.7%
402	AB_Lumbricus.terrestris	10.7%
403	AB_Microsclex	10.7%

	Variables	TC
404	AB_Microsclex.dubius	10.7%
405	AB_Microsclex.phosphoreus	10.7%
406	AB_Murchieona.minuscula	10.7%
407	AB_Octolasion	10.7%
408	AB_Octolasion.cyaneum	10.7%
409	AB_Octolasion.lacteum	10.7%
410	AB_Octolasion.tyrtaeum	10.7%
411	AB_Oligochaeta	10.7%
412	AB_Prosellodrilus	10.7%
413	AB_Satchellius.mammalis	10.7%

	Variables	TC
414	AB_Scherotheca	10.7%
415	AB_Scherotheca.gigas	10.7%
416	AB_Scherotheca.rhodana	10.7%
418	BM_Allolobophora.cupulifera	10.7%
419	BM_Allolobophoridella.eiseni	10.7%
420	BM_Aporrectodea	10.7%
422	BM_Aporrectodea.giardi	10.7%
426	BM_Aporrectodea.rubra	10.7%
427	BM_Aporrectodea.terrestris	10.7%
428	BM_Aporrectodea.trapezoides	10.7%

	Variables	TC
429	BM_Bimastos.eiseni	10.7%
430	BM_Dendrobaena	10.7%
431	BM_Dendrobaena.alpina	10.7%
432	BM_Dendrobaena.alpina.juvenile	10.7%
433	BM_Dendrobaena.mammalis	10.7%
434	BM_Dendrobaena.octaedra	10.7%
436	BM_Dendrodrilus.subrubicundus	10.7%
437	BM_Eiseniella.tetraedra.	10.7%
441	BM_Lumbricus.centralis	10.7%
442	BM_Lumbricus.festivus	10.7%

	Variables	TC
443	BM_Lumbricus.friendi.friendi	10.7%
444	BM_Lumbricus.meliboeus	10.7%
448	BM_Microscolex	10.7%
449	BM_Microscolex.dubius	10.7%
450	BM_Microscolex.phosphoreus	10.7%
451	BM_Murchieona.minuscula	10.7%
452	BM_Octolasion	10.7%
453	BM_Octolasion.cyaneum	10.7%
454	BM_Octolasion.lacteum	10.7%
455	BM_Octolasion.tyrtaeum	10.7%

	Variables	TC
456	BM_Oligochaeta	10.7%
457	BM_Proseleodrilus	10.7%
458	BM_Satchellius.mammalis	10.7%
459	BM_Scherotheca	10.7%
460	BM_Scherotheca.gigas	10.7%
461	BM_Scherotheca.rhodana	10.7%
424	BM_Aporrectodea.longa	10.6%
435	BM_Dendrodrilus.rubidus	10.6%
439	BM_Lumbricus	10.6%
445	BM_Lumbricus.rubellus.castanoides	10.5%

	Variables	TC
481	AB_Octodrilus_indéterminable	10.5%
482	AB_PAX	10.5%
485	AB_Scherotheca_Porotheca	10.5%
487	BM_Octodrilus_indéterminable	10.5%
488	BM_PAX	10.5%
491	BM_Scherotheca_Porotheca	10.5%
440	BM_Lumbricus.castaneus	10.4%
446	BM_Lumbricus.rubellus.rubellus	10.4%
46	herbicide_freq	10.3%
423	BM_Aporrectodea.icterica	10.2%

Variables		TC
237	AB_Haplotaxis_sp	10%
238	BM_Haplotaxis_sp	10%
447	BM_Lumbricus.terrestris	9.9%
417	BM_Allolobophora.chlorotica	9.8%
425	BM_Aporrectodea.rosea	9.2%
23	cu_EDTA	8.7%
44	fungicide_freq	8.6%
421	BM_Aporrectodea.caliginosa	7.8%
45	insecticide_freq	7.7%
22	cu_tot	7.6%

Variables		TC
41	ferti_orga_product	7.6%
253	AB_Dendrobaena_cognettii	7.1%
254	BM_Dendrobaena_cognettii	7.1%
356	AB_Pheretima_indéterminable	7.1%
363	BM_Pheretima_indéterminable	7.1%
68	herbage_use	6.8%
15	ph_kcl	6.4%
34	tillage_depth	5.8%
353	AB_Dendrobaena_hortensis	5.8%
360	BM_Dendrobaena_hortensis	5.8%

Variables		TC
438	BM_Lumbricidae	5.7%
39	ferti_min_product	5.6%
47	molluscicide_freq	5.6%
84	AB_Allolobophora_chlorotica_indéterminable	5.6%
130	BM_Allolobophora_chlorotica_indéterminable	5.6%
355	AB_Flabbellodrilus_bartolii	5.6%
362	BM_Flabbellodrilus_bartolii	5.6%
178	AB_Scherotheca_rhodana	5.5%
182	BM_Scherotheca_rhodana	5.5%
305	AB_Ethnodrilus_lydiae	5%

	Variables	TC
311	AB_Zophoscolex_graffi	5%
312	BM_Ethnodrilus_lydiae	5%
318	BM_Zophoscolex_graffi	5%
466	AB_Microscolex_sp	4.9%
469	BM_Microscolex_sp	4.9%
350	AB_Aporrectodea_georgii	4.8%
367	BM_Aporrectodea_georgii	4.8%
58	rotation_plant_div	4.7%
243	AB_Aporrectodea_balisa	4.7%
244	BM_Aporrectodea_balisa	4.7%

	Variables	TC
57	crop_rotation_yr	4.6%
467	AB_Pheritima_Diffringens	4.6%
470	BM_Pheritima_Diffringens	4.6%
73	grassland_type	4.5%
333	AB_Scherotheca_portonana	4.5%
334	AB_Scherotheca_brevisella	4.5%
337	AB_Dendrobaena_byblica	4.5%
341	AB_Lumbricus_klarae	4.4%
345	AB_Ethnodrilus_aveli	4.4%
492	AB_Adult	4.4%

	Variables	TC
493	AB_cocon	4.4%
494	AB_indéterminé	4.4%
495	AB_Juvenile	4.4%
496	AB_Sub.adult	4.4%
497	AB_Aporrectodea_arverna	4.4%
498	AB_Aporrectodea_caliginosa_alternisetosus	4.4%
499	AB_Aporrectodea_caliginosa_caliginosa	4.4%
500	AB_Aporrectodea_ripicola	4.4%
501	AB_Aporrectodea_rubra_rubra	4.4%
502	AB_Aporrectodea_voconca	4.4%

	Variables	TC
503	AB_Boucheona_corbierensis	4.4%
504	AB_Ethnodrilus_setusmonsanus	4.4%
505	AB_Flabellodrilus_luberonensis	4.4%
506	AB_Gatesona_chaetophora	4.4%
507	AB_Gatesona_lablacherensis	4.4%
508	AB_Haplotaxis_gordioides	4.4%
509	AB_Helodrilus_oculatus	4.4%
510	AB_Indéterminé	4.4%
511	AB_Kritodrilus_calarensis	4.4%
512	AB_Lucquesia_tiginosa	4.4%

	Variables	TC
513	AB_Lumbricus_bouchei	4.4%
514	AB_Lumbricus_castaneus_castaneus	4.4%
515	AB_Lumbricus_improvisus	4.4%
516	AB_Lumbricus_rubellus_castaneoides	4.4%
517	AB_Murchieona_minuscula	4.4%
518	AB_Octolasion_lacteum	4.4%
519	AB_Octolasion_tyrtaeum	4.4%
520	AB_Panoniona_satchelli	4.4%
521	AB_Proctodrilus_tuberculatus	4.4%
522	AB_Prosellodrilus_alatus	4.4%

	Variables	TC
523	AB_Prosellodrilus_fragilis	4.4%
524	AB_Prosellodrilus_polythecosus	4.4%
525	AB_Prosellodrilus_pyrenaicus_pyrenaicus	4.4%
526	AB_Scherotheca_altarocca	4.4%
527	AB_Scherotheca_aquitania	4.4%
528	AB_Scherotheca_betharramensis	4.4%
529	AB_Scherotheca_capcorsana	4.4%
530	AB_Scherotheca_dugesi	4.4%
531	AB_Scherotheca_gigas_gigas	4.4%
532	AB_Scherotheca_minor_minor	4.4%

	Variables	TC
533	AB_Scherotheca_monspessulensis_idica	4.4%
534	AB_Scherotheca_monspessulensis_monspessulensis	4.4%
535	AB_Scherotheca_sanaryensis	4.4%
536	AB_Scherotheca_savignyi	4.4%
537	AB_Scherotheca_sp.	4.4%
538	AB_Scherotheca_trezencensis	4.4%
539	AB_Vignysa_callasensis	4.4%
540	AB_Vignysa_teres	4.4%
541	AB_Vosgesia_zicsii	4.4%
542	AB_Zophoscolex_atlanticus	4.4%

	Variables	TC
543	AB_Zophoscolex_micellus	4.4%
544	BM_Aporrectodea_arverna	4.4%
545	BM_Aporrectodea_caliginosa_alternisetosus	4.4%
546	BM_Aporrectodea_caliginosa_caliginosa	4.4%
547	BM_Aporrectodea_ripicola	4.4%
548	BM_Aporrectodea_rubra_rubra	4.4%
549	BM_Aporrectodea_voconca	4.4%
550	BM_Boucheona_corbierensis	4.4%
551	BM_Dendrobaena_byblica	4.4%
552	BM_Ethnodrilus_aveli	4.4%

Variables		TC
553	BM_Ethnodrilus_setusmonsanus	4.4%
554	BM_Flabbellodrilus_luberonensis	4.4%
555	BM_Gatesona_chaetophora	4.4%
556	BM_Gatesona_lablacherensis	4.4%
557	BM_Haplotaxis_gordioides	4.4%
558	BM_Helodrilus_oculatus	4.4%
559	BM_Indéterminé	4.4%
560	BM_Kritodrilus_calarensis	4.4%
561	BM_Lucquesia_tiginosa	4.4%
562	BM_Lumbricus_bouchei	4.4%

Variables		TC
563	BM_Lumbricus_castaneus_castaneus	4.4%
564	BM_Lumbricus_improvisus	4.4%
565	BM_Lumbricus_klarae	4.4%
566	BM_Lumbricus_rubellus_castaneoides	4.4%
567	BM_Murchieona_minuscula	4.4%
568	BM_Octolasion_lacteum	4.4%
569	BM_Octolasion_tyrtaeum	4.4%
570	BM_Panoniona_satchelli	4.4%
571	BM_Proctodrilus_tuberculatus	4.4%
572	BM_Prosellodrilus_alatus	4.4%

Variables		TC
573	BM_Prosellodrilus_fragilis	4.4%
574	BM_Prosellodrilus_polythecosus	4.4%
575	BM_Prosellodrilus_pyrenaicus_pyrenaicus	4.4%
576	BM_Scherotheca_altarocca	4.4%
577	BM_Scherotheca_aquitania	4.4%
578	BM_Scherotheca_betharramensis	4.4%
579	BM_Scherotheca_brevisella	4.4%
580	BM_Scherotheca_capcorsana	4.4%
581	BM_Scherotheca_dugesi	4.4%
582	BM_Scherotheca_gigas_gigas	4.4%

Variables		TC
583	BM_Scherotheca_minor_minor	4.4%
584	BM_Scherotheca_monspessulensis_idica	4.4%
585	BM_Scherotheca_monspessulensis_monspessulensis	4.4%
586	BM_Scherotheca_portonana	4.4%
587	BM_Scherotheca_sanaryensis	4.4%
588	BM_Scherotheca_savignyi	4.4%
589	BM_Scherotheca_sp.	4.4%
590	BM_Scherotheca_trezencensis	4.4%
591	BM_Vignysa_callasensis	4.4%
592	BM_Vignysa_teres	4.4%

Variables		TC
593	BM_Vosgesia_zicsii	4.4%
594	BM_Zophoscolex_atlanticus	4.4%
595	BM_Zophoscolex_micellus	4.4%
188	AB_Octolasion_lacteum	4%
54	total_tfi	3.9%
42	ferti_orga_qtty	3.8%
35	tillage_frequency_intra	3.7%
195	BM_Octolasion_lacteum	3.6%
463	AB_Lumbricus_rubellus_indéterminable	3.6%
465	BM_Lumbricus_rubellus_indéterminable	3.6%

	Variables	TC
48	nematicide_freq	3.2%
51	tfi_herbicide	3.1%
209	Parcelle	3%
236	AB_tot	3%
201	AB_Allolobophora_muldali	2.9%
202	AB_Dendrobaena_mammalis	2.9%
203	AB_Lumbricus_herculeus	2.9%
205	BM_Allolobophora_muldali	2.9%
206	BM_Dendrobaena_mammalis	2.9%
207	BM_Lumbricus_herculeus	2.9%

	Variables	TC
99	AB_Aporrectodea_rubra	2.8%
127	AB_Scherotheca_dinoscolex	2.8%
145	BM_Aporrectodea_rubra	2.8%
173	BM_Scherotheca_dinoscolex	2.8%
60	rotation_grassland	2.4%
71	animal_loading	2.2%
40	ferti_min_qtty	2.1%
70	herb_age	2%
61	crop_residues_management	1.9%
251	AB_Ethnodrilus_zajonci	1.5%

Variables		TC
252	BM_Ethnodrilus_zajonci	1.5%
259	AB_A.X	1.5%
269	AB_L.A.X	1.5%
271	AB_LR.X	1.5%
272	AB_N.A.X	1.5%
276	BM_A.X	1.5%
286	BM_L.A.X	1.5%
288	BM_LR.X	1.5%
289	BM_N.A.X	1.5%
55	mecanical_weed_control	1.3%

	Variables	TC
72	trampling_nature	1.3%
59	intercrop_div	1.2%
211	AB_Allolobophora_chlorotica	1.2%
293	AB_EA	1.2%
294	AB_EN.X	1.2%
295	AB_EP.X	1.2%
296	AB_L.E.X	1.2%
297	AB_NCTU	1.2%
298	AB_OT	1.2%
299	BM_EA	1.2%

Variables		TC
300	BM_EN.X	1.2%
301	BM_EP.X	1.2%
302	BM_L.E.X	1.2%
303	BM_NCTU	1.2%
304	BM_OT	1.2%
352	AB_Dendrobaena_alpina_zeugochaeta	1.2%
354	AB_Eisenia_sp	1.2%
357	AB_Proseleodrillus_pyrenaicus	1.2%
358	AB_Scherotheca_nivicola	1.2%
359	BM_Dendrobaena_alpina_zeugochaeta	1.2%

Variables		TC
361	BM_Eisenia_sp	1.2%
364	BM_Proseilodrilus_pyrenaicus	1.2%
365	BM_Scherotheca_nivicola	1.2%
50	tfi_insecticide	1.1%
69	mowing_frequency_yr	1.1%
175	AB_Aporrectodea_nocturna_nocturna_cistercianus	1.1%
177	AB_Scherotheca_mifuga	1.1%
179	BM_Aporrectodea_nocturna_nocturna_cistercianus	1.1%
181	BM_Scherotheca_mifuga	1.1%
213	AB_Aporrectodea_longa/giardi	1.1%

Variables		TC
226	BM_Aporrectodea_longa/giardi	1.1%
210	AB_Aporrectodea_icterica	0.8%
36	tillage_frequency_inter	0.7%
215	AB_Lumbricus_friendi/centralis	0.7%
223	BM_Aporrectodea_icterica	0.7%
228	BM_Lumbricus_friendi/centralis	0.7%
224	BM_Allolobophora_chlorotica	0.6%
306	AB_Hemigastrodrilus_monicae_magnus	0.6%
307	AB_Hormogaster_praetiosa	0.6%
310	AB_Scherotheca_corsicana_corsicana	0.6%

Variables		TC
313	BM_Hemigastrodrilus_monicae_magnus	0.6%
314	BM_Hormogaster_praetiosa	0.6%
317	BM_Scherotheca_corsicana_corsicana	0.6%
600	AB_Octolasion_lacteum_gracile	0.6%
601	BM_Octolasion_lacteum_gracile	0.6%
25	soil_humidity	0.5%
24	soil_temperature	0.4%
260	AB_ACC.X	0.4%
261	AB_An.X	0.4%
262	AB_D.X	0.4%

	Variables	TC
263	AB_endo.X	0.4%
264	AB_Ep.An.X	0.4%
265	AB_Hormogaster.A.X	0.4%
266	AB_Hormogaster.End.X	0.4%
267	AB_Hormogaster.X	0.4%
268	AB_id1961mt1	0.4%
270	AB_L.X	0.4%
273	AB_N.X	0.4%
274	AB_Octodrilus_lisseansis	0.4%
275	AB_P.X	0.4%

Variables		TC
277	BM_ACC.X	0.4%
278	BM_An.X	0.4%
279	BM_D.X	0.4%
280	BM_endo.X	0.4%
281	BM_Ep.An.X	0.4%
282	BM_Hormogaster.A.X	0.4%
283	BM_Hormogaster.End.X	0.4%
284	BM_Hormogaster.X	0.4%
285	BM_id1961mt1	0.4%
287	BM_L.X	0.4%

	Variables	TC
290	BM_N.X	0.4%
291	BM_Octodrilus_lisseansis	0.4%
292	BM_P.X	0.4%
326	AB_Lumbricus_rubellus	0.4%
366	AB_Panoniona_leoni	0.4%
368	BM_Panoniona_leoni	0.4%
212	AB_A._muldali/rosea	0.3%
225	BM_A._muldali/rosea	0.3%
255	AB_Ep.X1	0.3%
256	AB_Ep.X2	0.3%

4.3 Zoom sur les coordonnées GPS

- Il y a **537** NA (TC = 93.2%) dans GPS_X
- Il y a **540** NA (TC = 93.2%) dans GPS_Y

► Code

- We delete the NA lines in the GPS coordinates
- La BDD passe donc de **7919** à **7378**

4.4 Cartographie

► Code

- We delete points outside France
- The BDD therefore changes from **7378** to **7378**.

4.5 Zoom sur les années

- Le TC de Année est : **96.7%** (118 levels)
- On enlève toutes les années avant **1990** et les NA

► Code

Nombres	
1821	1
1960	1
1978	1
1982	1

Nombres

1983	1
1984	3
1986	1
1988	1
1989	2
1990	19
1991	23
1992	23
1993	15
1994	29

Nombres

1995	7
1996	19
1997	18
1998	20
1999	37
2000	25
2001	11
2002	24
2003	18
2004	10

Nombres

2005	59
2006	73
2007	102
2008	47
2009	100
2010	410
2011	105
2012	253
2013	307
2014	735

Nombres	
2015	273
2016	852
2017	360
2018	493
2019	593
2020	414
2021	1230
2022	515
2023	145
NA's	2

► Code

```
[1] "1990" "1991" "1992" "1993" "1994" "1995" "1996" "1997" "1998" "1999"  
[11] "2000" "2001" "2002" "2003" "2004" "2005" "2006" "2007" "2008" "2009"  
[21] "2010" "2011" "2012" "2013" "2014" "2015" "2016" "2017" "2018" "2019"  
[31] "2020" "2021" "2022" "2023"
```

► Code

```
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005  
  19   23   23   15   29    7   19   18   20   37   25   11   24   18   10   59  
2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021  
  73  102   47  100  410  105  253  307  735  273  852  360  493  593  414 1230  
2022 2023  
 515  145
```

- The BDD therefore changes from **7378** to **7364**.

4.6 Zoom sur l'occupation du sol 1

- Le TC de clcm_lvl1 = 76.8% (4 levels)

► Code

	Nombres
1_Naturel	303
2_Agricole	4292
3_Artificialisé	956
Agricole	270
NA's	1557

- Pour le moment, on garde les NA de **clcm_lvl1** ## Zoom sur l'occupation du sol 2
- TC de clcm_lvl2 = **81.1%** (27 levels)

► Code

	Nombres
11_Naturel_fermé	143
12	1
12_Naturel_ouvert	128
13_Zone_humide	31
14	1

	Nombres
21	2
21_Agricole_ouvert	4109
22	7
22_Agricole_boisé	174
23	132
23_Bord_de_champs	9
31	102
31_Espace_vert_boisé	71
32	69
32_Espace_vert_ouvert	430

Nombres

33	6
33_Espace_vert_ornemental	22
34_Espace_cultivé_urbain	262
35_Bordure_de_voirie	152
37_Zone_de_chantier	4
38_Friche_industrielle	12
39_Zone_humide_artificielle	3
41	27
Agroforestry	4
Arableland	173

4.7 Zoom sur l'occupation du sol 3

- Le TC de clcm_lvl3 est : **73.2%** (63 levels)

► Code

	Nombres
111_Forêt_de_feuillus	29
112_Forêt_de_conifères	4
113_Forêt_mixte	88
114_Bois	8
114c_Bois_ou_forêt_contaminé	6

	Nombres
115_Autre	8
120_Végétation_clairsemée	66
121_Prairie_naturelle_&_Paturage	53
122_Lande_mésophile_et_broussailles	7
124_Plage,_dune_et_sable	1
130_Prairie_humide	25
131_Mégaphorbiaie	1
132_Lande_hygrophile	6
210_Prairie_agricole_permanente	185
210_Prairie_agricole_permanente?	1

	Nombres
211_Prairie_agricole_temporaire	163
212_Jachère	3
213_Bande_enherbée	59
214_Culture_annuelle	2272
214c_Culture_annuelle	2
215_Interculture	101
216_Maraîchage_et_légume_plein_champ	10
216l_Légume_plein_champ	184
216m_Maraichage	21
217_Serre,_tunnel_fixe	4

	Nombres
218_Vignes_et_autres_Cultures_pérennes	998
219_Autre	18
220ir_Agroforesterie	46
220r_Agroforesterie	43
221_Arboriculture	11
221_Verger	1
223_Autre	57
230_Talus_et_bordure_enherbés	7
231_Prairies	17
232_Haie	1

	Nombres
232_Haies	17
310_Forêt_urbaine	19
311_Bois_urbain	41
312_Verger	6
313_Autre	7
320_Prairie_urbaine	74
321_Pelouse	29
321_Pelouse_urbaine	219
322_Terrain_récréatif	59
323_Autre	1

	Nombres
324_Prairie_aéroport	44
330_Massif_ornemental	22
340_Potager	258
340p_Potager-pelouse	1
340p_Potager-Pelouse	1
343_Autre	4
350_Bande_enherbée_contrainte	54
351_Massif_ornemental_contraint	10
352_Alignement_d'arbres_en_fosse_continue	38
353_Arbre_en_fosse_unitaire	13

	Nombres
354_Rond-point	19
355_Noue_enherbée	7
356_Noue_arborée	10
357_Autre	1
370_Stock_de_terre	4
380_Friche_industrielle	12
391_Bassin_de_rétention	3
Prairie_agricole	62
NA's	1837

4.8 Reclassification

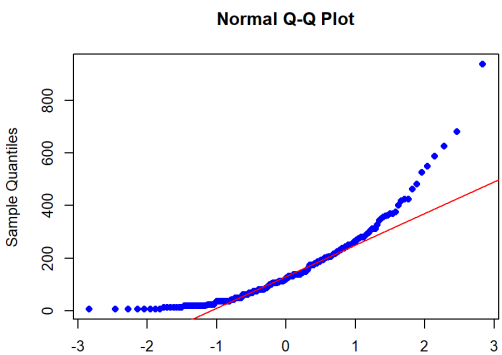
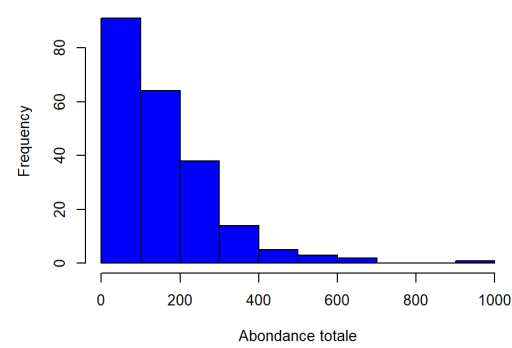
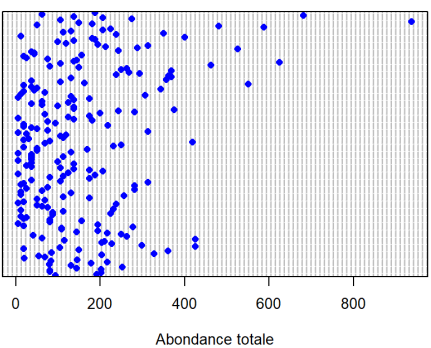
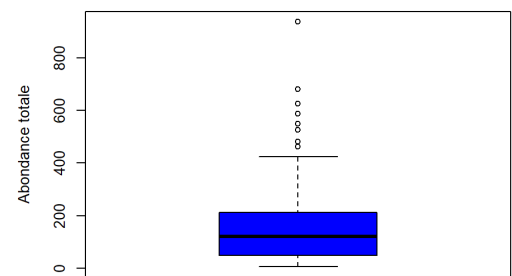
- Selon les labels de *CORINE Land Cover*

5 Les données vers de terre

5.1 Abondance totale

- TC de AB_tot = 3%

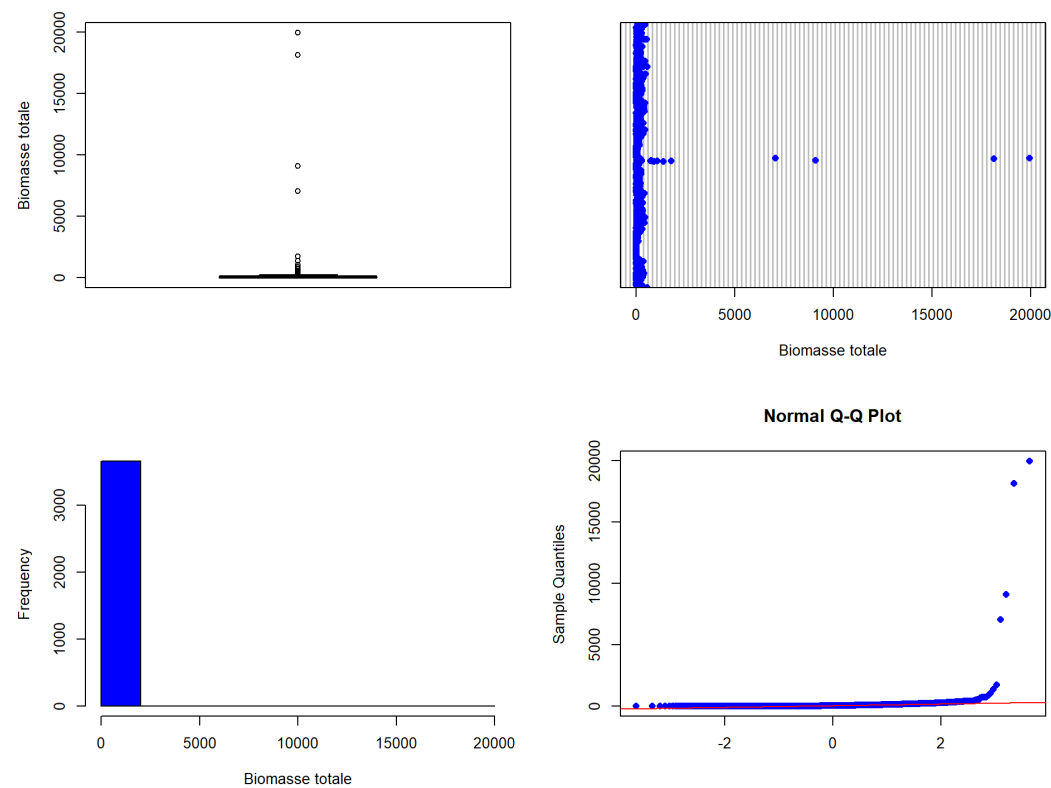
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
6.25	50.00	121.88	153.57	211.98	937.50	7160



5.2 Biomasse totale

- TC de BM_tot = 48.5%

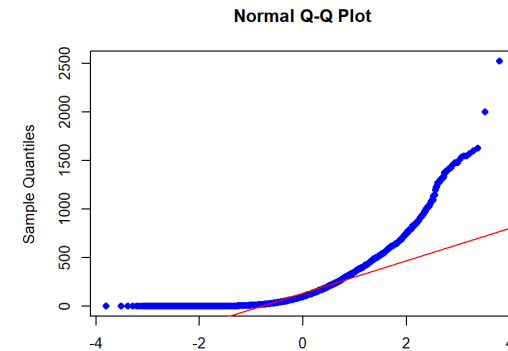
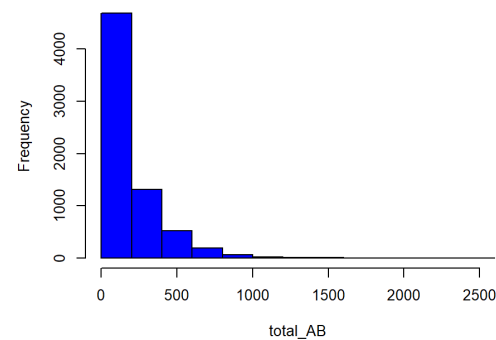
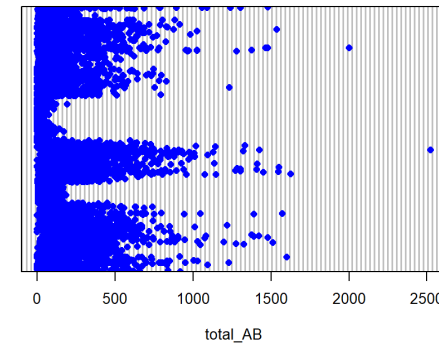
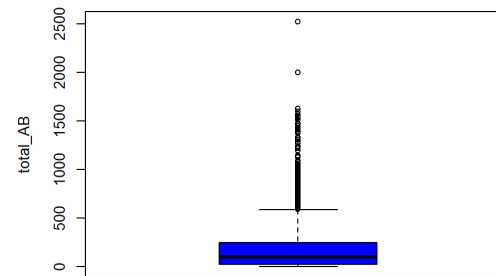
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
0.00	17.21	53.73	91.06	107.28	19962.47	3717



5.3 Total_AB ?, Richesse ?

- TC de Total_AB = 92.9%

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
0.0	25.0	100.0	176.2	250.7	2525.0	537



6 Extraction des données pédologiques

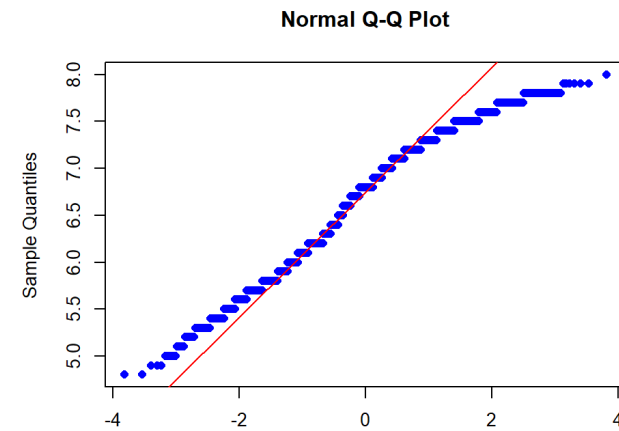
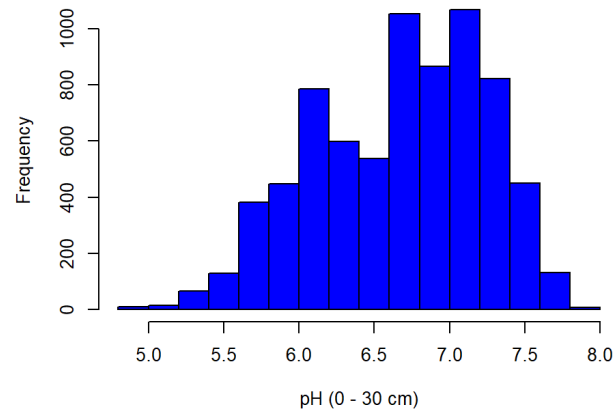
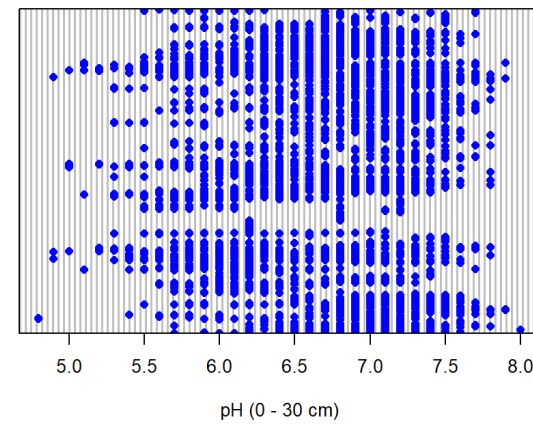
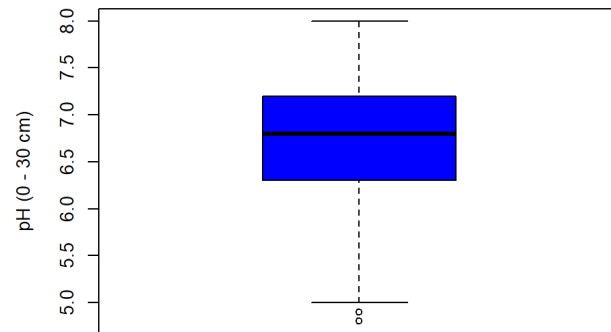
6.1 La bdd source

► Code

Sources	Non_bdd	Categories	Variables	Unites	F
Fourcade et al., 2022	OpenLandMap	pédologiques	pH		.t
			densité apparente	kg / m- cube	
			sable	% (kg/kg)	

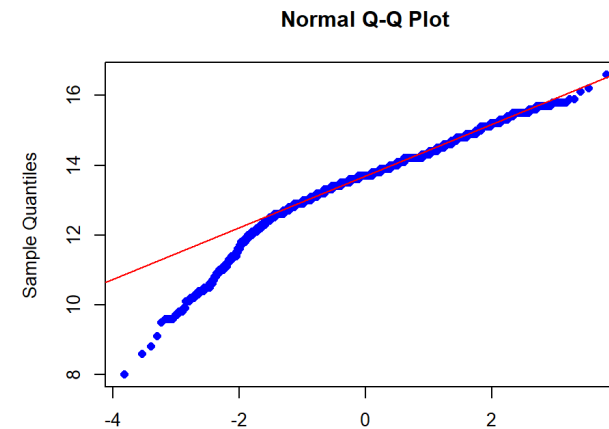
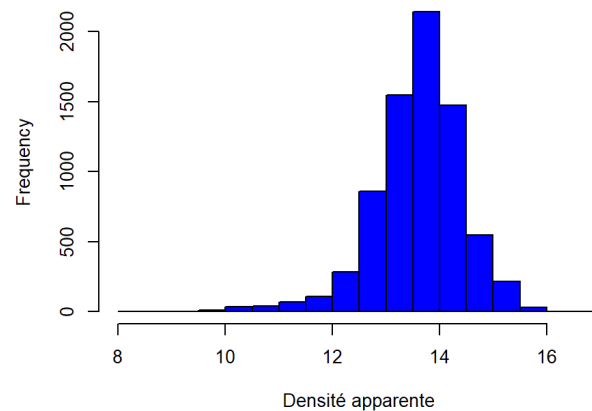
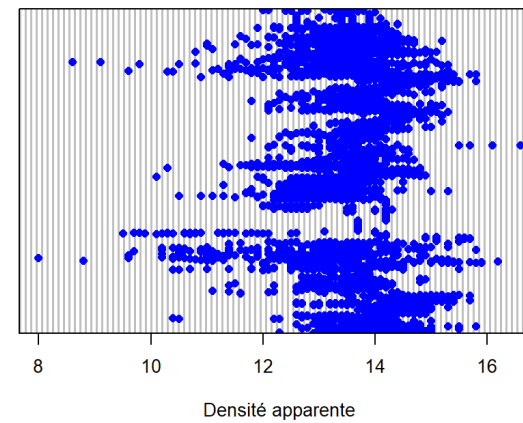
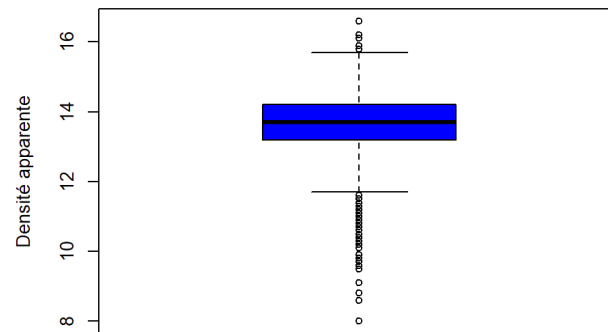
6.2 pH

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
4.80	6.30	6.80	6.72	7.20	8.00	8



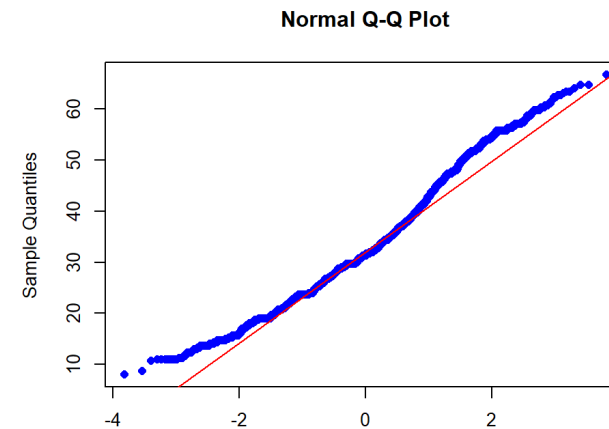
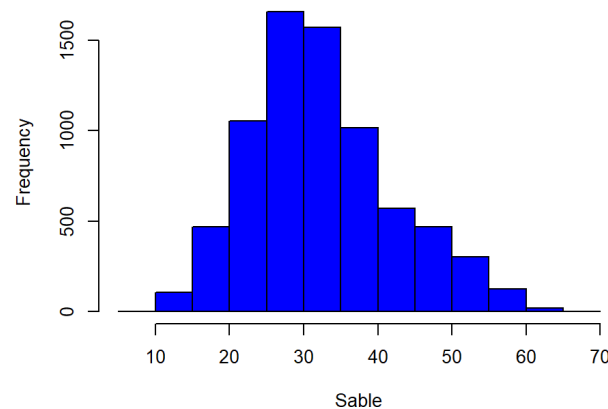
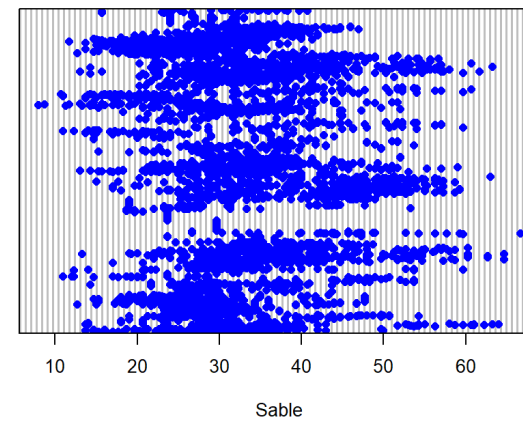
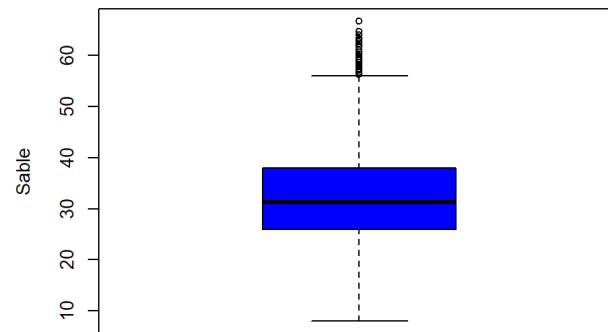
6.3 Densité apparente (kg / m-cube)

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
8.00	13.20	13.70	13.65	14.20	16.60	8



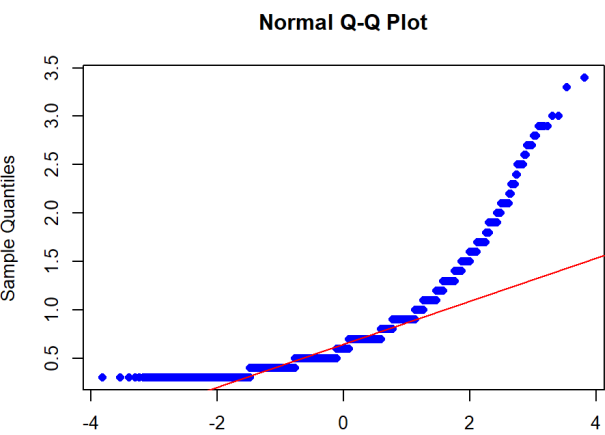
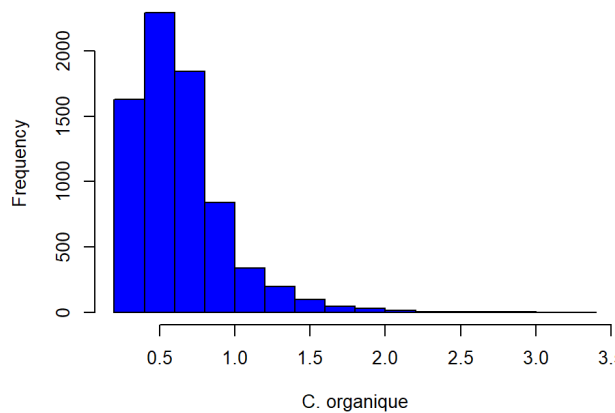
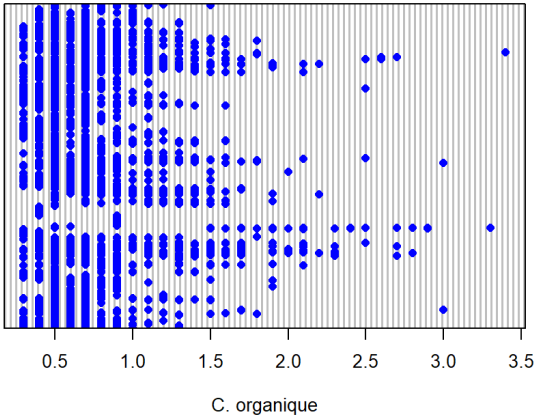
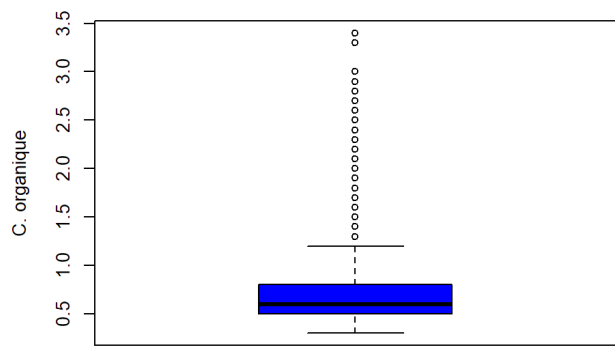
6.4 Teneur en sable (% kg/kg)

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
8.00	26.00	31.30	32.72	38.00	66.70	8



6.5 Teneur en carbone (g/kg)

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
0.3000	0.5000	0.6000	0.6749	0.8000	3.4000	8



7 Extraction des données climatique

7.1 La bdd source

► Code

Sources	Non_bdd	Categories	Variables	Unites	Formats
Fourcade et al., 2022	CHELSA V2.1	climatique	bio1	°C	.tif
			

Sources	Non_bdd	Categories	Variables	Unites	Formats
			bio19	kg/m ²	

7.2 Méthode d'extraction

- Récupération des liens (voir fichier *liens_tif*)
- Extractions des noms des variables
- Utilisations de la fonction *extraction()*
- Conversion des colonnes au bon format et à la bonne unité
- Ajout des variables à la BBD

► Code

```
[1] FALSE
```

► Code

```
[1] FALSE
```


7.3 Liste des variables

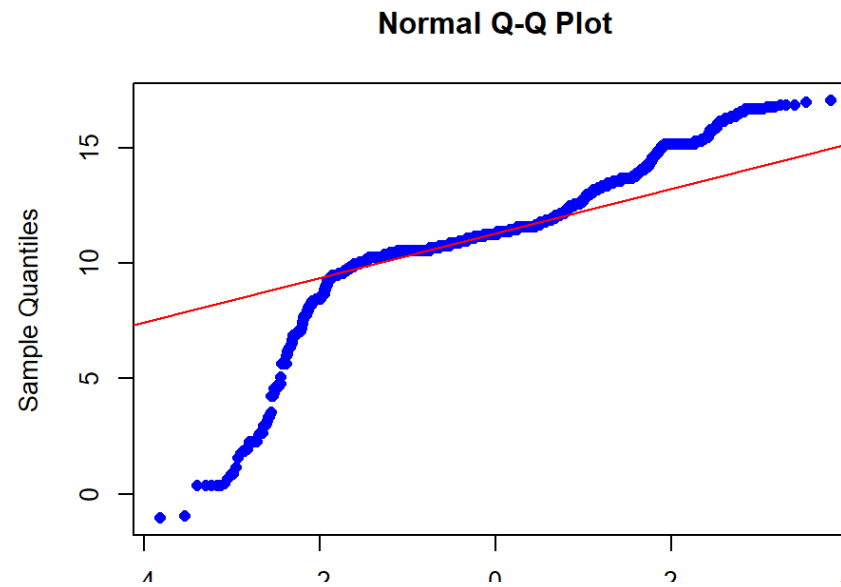
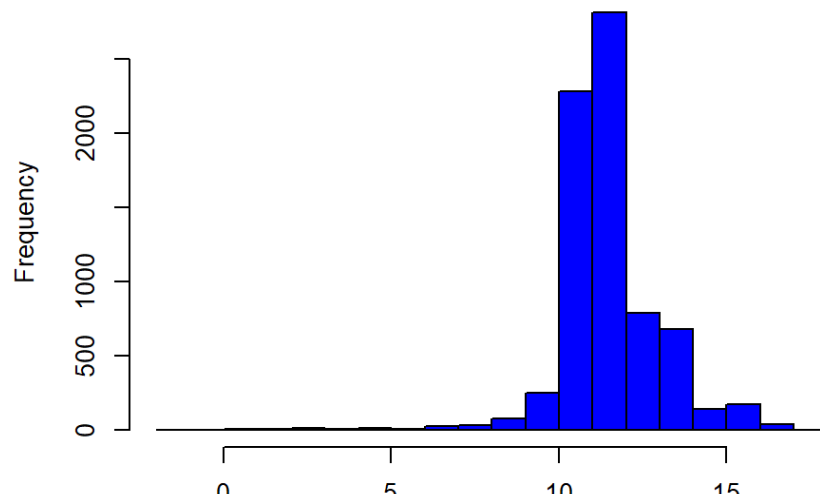
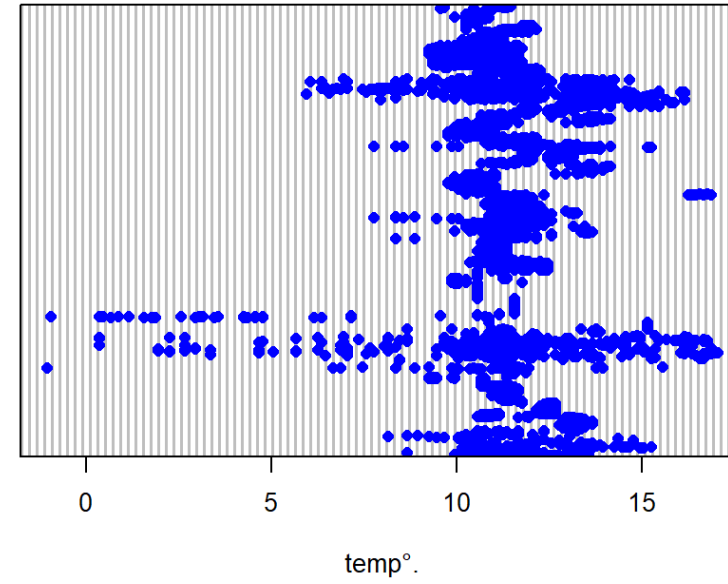
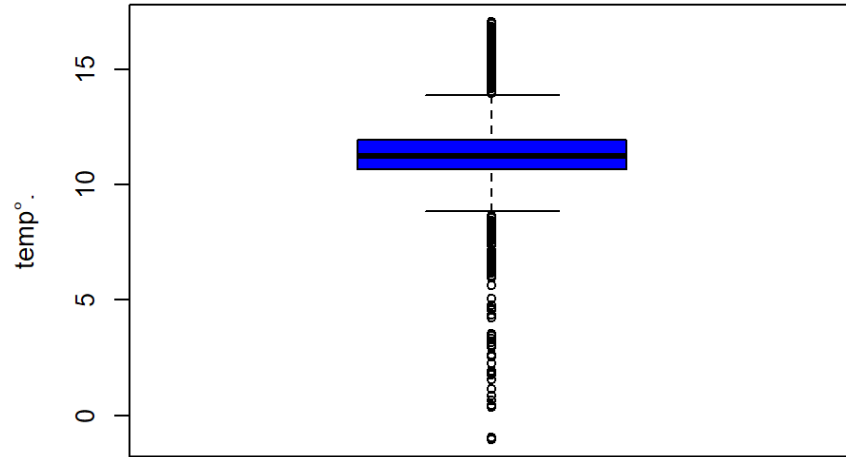
Déscription des variables

ID	gps_x	gps_y	ai
Length:7378	Min. : -5.0496	Min. : 41.44	Min. : 0.5901
Class :character	1st Qu.: -0.3535	1st Qu.: 46.17	1st Qu.: 0.9428
Mode :character	Median : 2.0985	Median : 47.92	Median : 1.0278
	Mean : 1.9577	Mean : 47.26	Mean : 1.0878
	3rd Qu.: 4.1679	3rd Qu.: 48.76	3rd Qu.: 1.1373
	Max. : 9.5213	Max. : 50.98	Max. : 3.4735
			NA's : 7

bio10	bio11	bio12	bio13
Min. : 8.35	Min. : -10.150	Min. : 563.7	Min. : 61.80
1st Qu.: 17.55	1st Qu.: 3.550	1st Qu.: 738.5	1st Qu.: 78.20
Median : 18.45	Median : 4.250	Median : 816.2	Median : 88.30
Mean : 18.61	Mean : 4.613	Mean : 847.3	Mean : 93.17
3rd Qu.: 19.55	3rd Qu.: 5.850	3rd Qu.: 898.8	3rd Qu.: 102.70
Max. : 24.75	Max. : 10.950	Max. : 2158.3	Max. : 239.90

7.4 Température (°C) = bio1

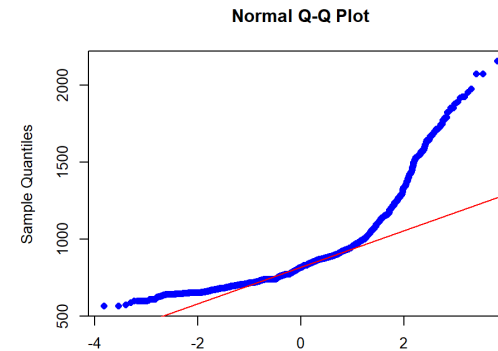
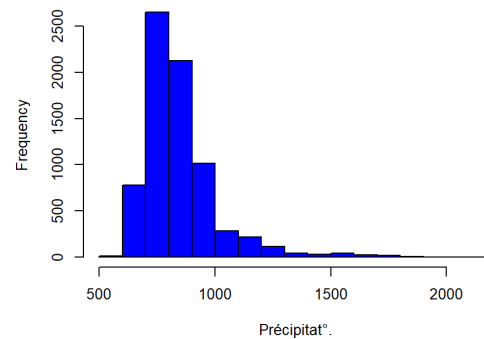
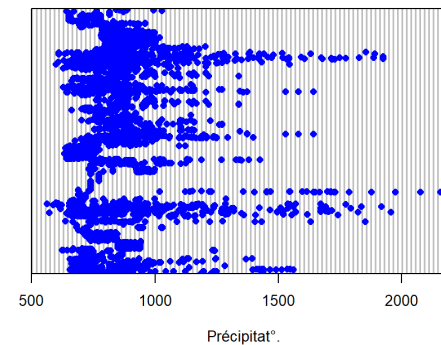
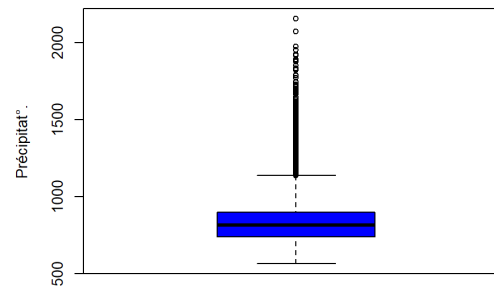
- Température moyenne annuelle de l'air



7.5 Précipitations (kg/m²) = bio12

- Quantité de précipitations annuelles

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
563.7	738.5	816.2	847.3	898.8	2158.3



8 Questions

- Comment gerer les parcelles repetées
- Liens des données du sol (sable, argile et limon) de data.gouv.fr ?
- C'est quoi la différence entre AB_tot et Total_AB
- Le niveau de OS ?
- Belgique ou erreur ?
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