Table 1: Characteristics and disadvantages of three types of hybrid poplar planting material used in Quebec (DesRochers and Tremblay, 2009; Drénou, 2006; Ménétrier, 2008)

	Characteristics	**Disadvantages**
Cutting	Stem segment without roots (30-50 cm) Directly inserted into the soil Easy production Costs related to their production are lower	Maintenance difficulties During the first years of growth: no initial height, competition with herbaceous plants especially for light
Whip	Long stem segment without roots (120-160 cm)	Planting difficulties, especially for clay soils where it is difficult to labor the soil to a depth of 30 cm
Bareroot	Young plants with a height of 150-200 cm and have a root systeme. Products from cuttings. Good performance in terms of growth and survival	High cost Difficulty planting (you have to dig the soil to install them, root system difficult to bury 30 cm deep)

Table 2: Initial soil and waste rock characterizations. All values are expressed on a dry matter basis. Where applicable, values represent mean ± standard error; N = 18 except for the waste rocks. EC = electrical conductivity; OM = organic matter.

	Units	Overburden topsoil	Overburden mineral soil	Waste rock	Quebec Government (2019) regulatory threshold
pH		6 ± 0.2	6 ± 0.2	6.7 to 9	
EC	$mS.cm^{-1}$	0.4 ± 0.1	0.4 ± 0.1		
OM	%	20 ± 4	1 ± 0.5		
N_{total}	%	0.6 ± 0.2	0.6 ± 0.3		
S_{total}	%	0.3 ± 0.05	0.3 ± 0.04		
Ca_{total}	$g.kg^{-1}$	3 ± 0.5	2 ± 0.2	15	
K_{avail}	$g.kg^{-1}$	0.1 ± 0.005	0.1 ± 0.004		
Mg_{avail}	$g.kg^{-1}$	0.6 ± 0.04	0.2 ± 0.01		
Na_{avail}	$mg.kg^{-1}$	26 ± 2	18 ± 3		
P_{total}	$mg.kg^{-1}$	1 ± 0.03	bdl		
Cu_{avail}	$mg.kg^{-1}$	7 ± 0.5	3.0 ± 0.1		
Fe_{avail}	$g.kg^{-1}$	0.3 ± 0.02	0.1 ± 0.005		
Mn_{avail}	$mg.kg^{-1}$	108 ± 15	20 ± 4		
Zn_{avail}	$mg.kg^{-1}$	5 ± 0.5	1 ± 0.1		
Al_{total}	$g.kg^{-1}$	13 ± 1	11 ± 0.9	9.5	
As_{total}	$mg.kg^{-1}$	6 ± 1	5 ± 1	5	30
B_{total}	$mg.kg^{-1}$	4 ± 1	2 ± 0.5		
Ca_{total}	$g.kg^{-1}$	9 ± 0.5	7 ± 0.6		
Cd_{total}	$mg.kg^{-1}$	0.2 ± 0.001	0.2 ± 0.001	0.2	5
Co_{total}	$mg.kg^{-1}$	5 ± 2	8 ± 1	20	50
Cr_{total}	$mg.kg^{-1}$	195 ± 26	140 ± 30	123	250
Cu_{total}	$mg.kg^{-1}$	54 ± 3	29 ± 1	25	100
Fe_{total}	$g.kg^{-1}$	29 ± 1	24 ± 2	24	
K_{total}	$g.kg^{-1}$	4 ± 0.5	2 ± 0.4	10	
Mg_{total}	$g.kg^{-1}$	14 ± 1	11 ± 2	10	
Mn_{total}	$mg.kg^{-1}$	449 ± 15	327 ± 22	372	1000
Mo_{total}	$mg.kg^{-1}$	3 ± 0.5	1 ± 0.09	6	10
Na_{total}	$g.kg^{-1}$	0.2 ± 0.02	0.2 ± 0.01	0.2	
Ni_{total}	$mg.kg^{-1}$	86 ± 12	64 ± 14	57	100
Pb_{total}	$mg.kg^{-1}$	157 ± 34	36 ± 5	31	500
S_{total}	$g.kg^{-1}$	3 ± 1	1 ± 0.05		
Sr_{total}	$mg.kg^{-1}$	99 ± 6	52 ± 5		
Ti_{total}	$g.kg^{-1}$	0.9 ± 0.07	0.9 ± 0.06		
Zn_{total}	$mg.kg^{-1}$	102 ± 10	59 ± 8	63	500