

Table 5.5 General chemical properties & mineralogy of BCI soils

Soil form	Soil classes with analysed profiles	SOM (Topsoil Org C %)	pH (water)	Exchange complex & labile cations (cmol _c .kg ⁻¹)	Exchangeable K (cmol _c .kg ⁻¹)	Field texture	Clay minerals	Profiles with analyses (Appendix B)
Brown fine loam	Chapman, Marron, Standley, Fairchild, Wetmore, Hood	1 profile; topsoil OC 20%	Topsoil neutral-moderately acid, pH 5 –7; subsoil reactions variable, very acid – slightly acid, pH 3.8 – 6; no mid-profile minima	Topsoil CEC 11- 46, ECEC 5 -52; subsoils CEC 6 – 45, ECEC 2 – 33; subsoils with low CEC highly saturated, EBS > 80% & Extr Al < 1; subsoils with high CEC low base saturation, EBS < 40% & Extr Al 4 – 10; no mid-profile BS minima	Variable, some extremely low, 0 – 0.08	Stony fine loam or light clay; little increase in clay with depth	Kaolinite > montmorillonite >gibbsite	PF07, PR03, PF03, PR12, PF11, PR08, PF09 & PR09
Dark fine loam	Nemesia & Miller	1 profile; topsoil OC 6%	Topsoil moderately acid, pH 5 –6; subsoil variable acid – slightly acid, pH 4.4 – 5.4; no mid-profile minima	Topsoil CEC 13- 28, ECEC15 -36; subsoils CEC 12-27, ECEC 8-19; high base saturation throughout, EBS > 85% & Extr Al < 1; mid-profile BS minima absent or weak	Variable, one extremely low, < 0.05	Stony fine loam or light clay; little increase in clay with depth	nd	PF12 & PR05
Red light clay	Ava, Harvard, Poacher, Balboa	2 profiles; topsoil OC 2 – 7 %; higher than colours indicate	Variable acid – v acid; 6.4 – 3.8; maximum in topsoil, mid-depth minimum in some profile	Topsoil CEC 13- 32, ECEC 8 – 14; subsoil CEC 4- 28; ECEC 1 – 6; topsoil EBS >90%; subsoil variable 20 – 100; topsoil Extr Al low, 0 - 1; subsoil variable, Tr – 5; EBS minimum & Extr Al maximum at mid-depth in some profiles	Frequently extremely low,	Clear gradual increase in clay from silty clay loam topsoils to silty clay subsoil	Kaolinite > gibbsite	PF01, PF02, PR06, PF05, PR15 & PF07
Pale swelling clay	Zetek, Barro Verde, Lake & Barbour	nd	Topsoil neutral – acid, pH 4.7 – 6.3; subsoils acid - very acid, pH 3.7 – 4.7; mid-depth minimum	Topsoil CEC 14 - 38, ECEC 12 -37; subsoils CEC 13 – 46, ECEC 7 – 34; topsoils highly saturated, EBS > 90% & Extr Al > 1; subsoils	Moderate in topsoils; 0.1 – 1.0; subsoils very – extremely low, 0 - 0.07	Clear increase in clay from silty clay loam to clay in colluvial Lake, but uniformly silty clay	Montmorillonite > kaolinite (>gibbsite)	PR02, PR01, PF04, PF06 & PR08

			pH in some profiles	variable, EBS 8 -91% & Extr Al 6 – 10, mid-depth BS minimum & Al maximum in some profiles		– clay throughout in others		
Shallow mottled clay	Lutz	nd	Topsoil slightly acid, pH 5.5 – 6; subsoil acid – s acid, pH 4.4 – 5.4	Very high CEC & ECEC throughout. Fully base saturated with v high Exch Ca, 30 - 50 & moderate - high Exch Mg. Extr Al negligible in sola	Topsoil moderate – high; subsoil variable low – moderate.	Increase in clay in fairly shallow subsoils; variable clayskins	No profile data but stream sediments indicate much montmorillonite	PR04 & PF14
