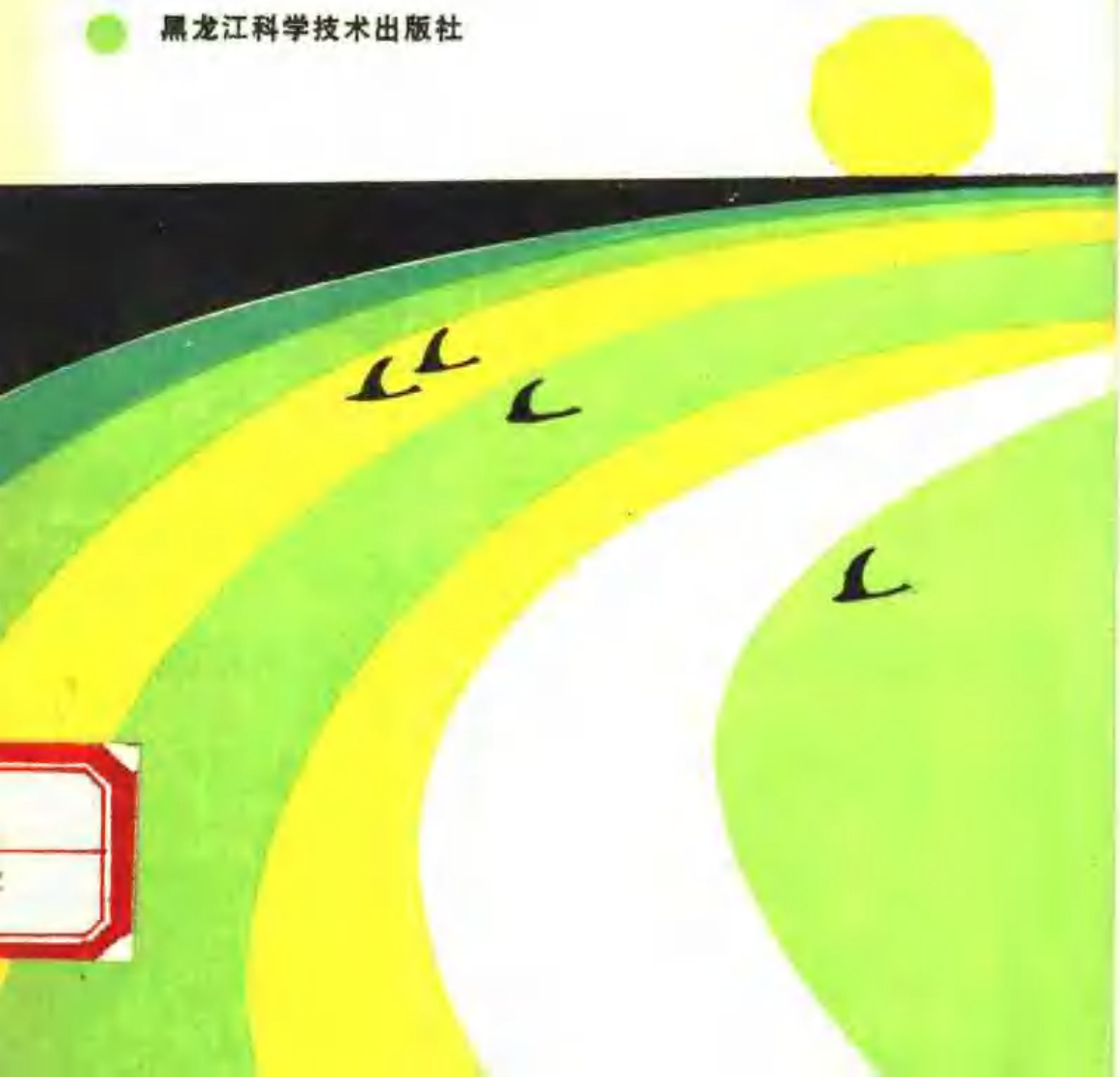


三江平原 低产土壤与改良

● 赵德林 著

● 黑龙江科学技术出版社



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三江平原
农田景观
摄于黑
龙江省宝清
县万金山乡



View of farmland in Shanjiang Plain,
Wanjinshan Countryside, Baoqing County,
Heilongjiang Province.

三江平原
沼泽地景观
摄于黑
龙江省宝清
县东升乡



View of bog—land in Shanjiang Plain,
Dongsheng Countryside, Baoqing County,
Heilongjiang Province.



心土混层
耕改良白浆土
作业现场
摄于黑龙
江省宝清县八
五三农场

Subsoil Plough improving Planosol with poor physical
chemical properties.
853 State Farm, Baoqing County, Heilongjiang Province.

超深松
改良黑朽土
作业现场
摄于黑
龙江省富锦
县长安乡



Subsoil Plough improving cold and clay meadow soil.
Changan Countryside, Fujin County, Heilongjiang Pro-
vince



在白浆土上应
用的浅翻深松犁
摄于黑龙江省
宝清县八五三农场

Shallow Plough and Subsoil Plough using in planosol.
853 State Farm, Baoqing County, Heilongjiang Pro-
vince.



黑朽土上犁底
鼠洞的排涝效果
摄于黑龙江省
富锦县长安乡

Effect on subdrainage of mole plough under plowpan in
Clay meadow soils.

Changan Countryside, Fujin County, Heilongjiang Pro-
vince.



利用苜蓿根系改良
白浆土

摄于黑龙江省宝清
县八五三农场

Alfalfa's roots to
improve planosol.

853 State Farm,
Baoqing County, Hei-
longjiang Province.

秸秆还田，培肥
耕层

摄于黑龙江省宝
清县八五三农场

Returning soy-
bean's stalks into
soil by a cutter be-
hind the combine.

853 State Farm,
Baoqing County,
Heilongjiang Pro-
vince.





草甸土
 摄于黑龙江省集贤县兴安乡

Meadow soil
 Place: Xingan County, Jixian County, Heilongjiang Province.

剖面形态:
 Ap层: 黑褐色, 铁锰结核, 粒状结构, 根系多
 A层: 黑褐色, 铁锰结核, 核状结构, 根系较多
 AC层: 暗黄色, 铁锰结核, 核状结构
 Cw层: 黄褐色, 大量锈斑与铁锰结核

Profile formation of the soil

Ap layer: 7.5YR3/1, Fe-Mn concretions, granular structure and roots.

A layer: 7.5YR2.5/1, Fe-Mn concretions, nucleus structure and a few roots.

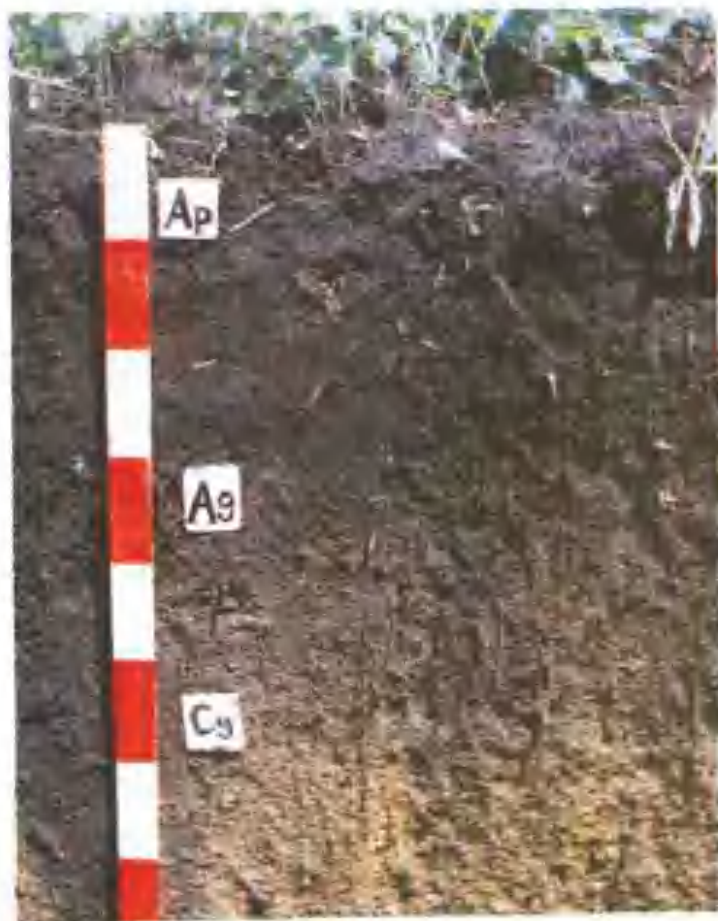
AC layer: 2.5Y5.5/2.5, Fe-Mn concretions, unclay structure.

Cw layer: 2.5Y5.5/3, considerable mottles and Fe-Mn concretions.

物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各级颗粒含量百分数 (Particle size) (%)							质地 (Texture)
	1-0.25	0.25-0.05	0.05-0.01	0.01-0.005	0.005-0.001	>0.001	>0.01	
	mm	mm	mm	mm	mm	mm	mm	
Ap	0.76	1.7	21.3	37.1	19.2	40.3	75.8	中粘土 (medium clay)
A	2.1	4.7	15.3	30.6	35.1	42.9	77.7	中粘土 (medium clay)
AC	0.36	1.0	17.3	33.2	39.6	46.3	81.2	重粘土 (heavy clay)
Cw	1.7	0.7	23.0	35.3	17.0	41.9	77.0	中粘土 (medium clay)

发生层 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容重 (g/cm ³)	硬度 (kg/cm ²)	总孔隙 (%)	毛管水 (%)	饱和水 (%)	田间水 (%)	透水性 (mm/hr)
Ap	6.2	3.31	0.15	0.12	2.37	1.19	7.3	58.3	42.7	45.3	35.3	43.3
A	6.5	1.93	0.09	0.12	2.38	1.31	12.5	53.2	37.7	38.8	33.8	4.9
AC	6.8	1.06	0.06	0.14	2.35	1.43	5.2	47.0	33.3	34.3	30.1	12.7
Cw	6.5	0.63	0.05	0.14	2.37	1.43	3.9	47.0	30.5	32.1	30.5	45.9



潜育草甸土
 摄于黑龙江省富锦县长安农场

Gleyed meadow soil
 Place: Chang'an State Farm, Fujin County, Heilongjiang Province.

剖面形态:
 Ap 层: 黑色, 腐殖质泥炭, 粒状结构, 根系多。
 Ag 层: 灰色, 少量锈斑, 潜育斑及石灰结核, 粒状结构, 根系较少。
 Cg 层: 灰棕色, 锈斑及铁锰结核, 核状结构。

Profile formation of the soil

Ap layer: 5YR1.7/1, humus peats, granular structure and considerable roots.

Ag layer: 5Y4/1, rust spots, gleyed spots and nucleus calcic concretions a few roots.

Cg layer: 5Y6/3, rust spots and Fe-Mn concretions, nucleus structure.

物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各级颗粒含量百分数 (Particle size %)							质地 (Texture)
	1-0.25 mm	0.25-0.075 mm	0.075-0.02 mm	0.02-0.005 mm	0.005-0.001 mm	<0.001 mm	>0.05 mm	
Ap	9.3	1.76	46.75	17.80	10.5	25.1	55.2	重粘土 (heavy clay loam)
Ag	9.4	18.3	25.25	14.6	10.4	28.3	55.3	重粘土 (heavy clay loam)
Cg	15.1	1.2	29.25	18.0	8.2	45.8	55.3	轻粘土 (slight clay loam)

发生层 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	总养分 (g/cm ³)	碱度 (kg/cm ²)	总孔隙 (%)	孔隙率 (%)	田间水 (%)	透水性 (mm/hr)
Ap	8.1	5.94	0.07	0.29	2.39	1.34	8.91	63.8	53.9	64.3	10.1
Ag	6.5	1.47	0.08	0.08	2.47	1.42	1.95	49.1	29.6	38.3	1.1
Cg	7.8	0.37	0.05	0.10	2.78	1.46	3.08	47.7	28.0	28.9	24.4

碳酸盐草甸土

摄于黑龙江省集贤县二九一农场

Carbonate meadow soil
Place: 291 State Farm, Ji-xian County, Heilongjiang Province.

剖面形态:

Ap 层: 黑褐色, 少量铁锰结核, 粒状结构, 根系多。

Cw 层: 灰黄色, 大量石灰斑及铁锰结核, 块状结构, 根系少。

Cca 层: 黄褐色, 大量石灰结核及锈斑, 核状结构。

Profile formation of the soil
AP layer: 7.5YR2.5/1, a few Fe--Mn concretions, granular structure, considerable roots.

Cw layer: 2.5Y6/2, considerable lime and Fe--Mn concretions, blocky structure, a few roots.

Cca layer: 2.5Y5/3, considerable lime rust spots, nucleus structure.



物理化学分析 (Physical-Chemical Analysis Data)

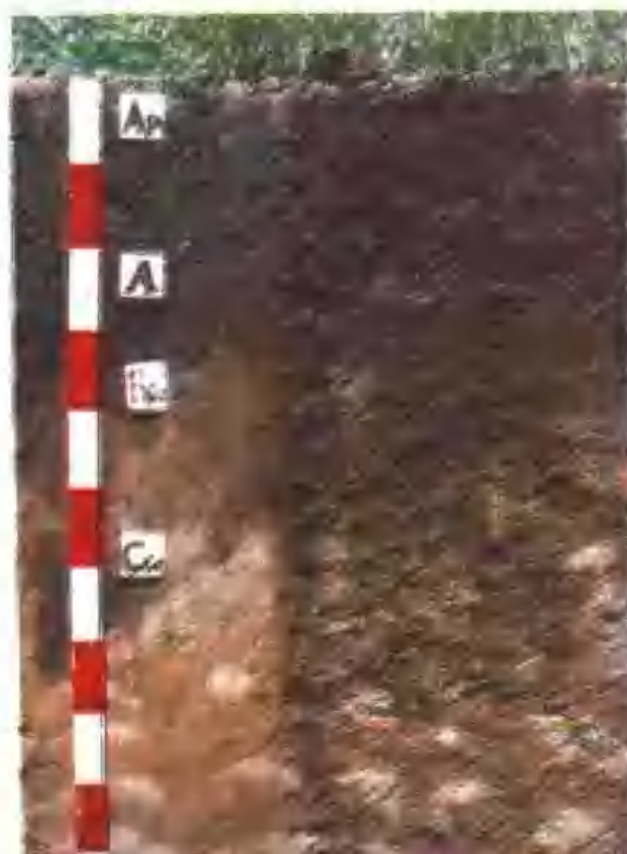
层 位 号 (Horizon)	各粒级黏土含量百分数 (Particle size)							粘 地 (Texture)
	1-0.25 mm	0.25-0.075 mm	0.075-0.025 mm	0.025-0.0075 mm	0.0075-0.0025 mm	0.0025-0.001 mm	0.001 mm	
Ap	81.5	10.0	3.5	1.0	0.5	0.2	0.1	轻粘土 (light clay)
Cw	62.0	18.0	12.0	4.0	2.0	1.0	0.5	轻粘土 (light clay)
Cca	55.0	15.0	12.0	12.0	3.0	1.0	0.5	轻粘土 (light clay)

层 位 号 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容 重 (kg/cm ³)	密 度 (kg/cm ³)	总孔隙 (%)	毛管水 (%)	总水 (%)	田间水 (%)	透 水 性 (mm/hr)
Ap	6.5	6.71	0.28	0.10	2.05	1.18	2.51	75.7	45.0	48.0	17.4	—
Cw	8.0	6.95	0.09	0.10	3.00	1.40	3.97	48.4	34.4	32.5	30.3	2.5
Cca	8.5	6.40	0.00	0.10	3.63	1.48	3.85	47.2	31.7	32.5	30.3	12.0

物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各级颗粒含量百分比 (Particle size) (%)							质地 (Texture)
	0.25-0.075	0.25-0.06	0.05-0.01	0.01-0.005	0.005-0.001	>0.001	<0.01	
	mm	mm	mm	mm	mm	mm	mm	
Ap	1.0	0.4	33.6	10.5	14.7	38.3	66.0	轻粘土 (light clay)
A	1.1	3.0	25.3	18.9	14.3	35.3	68.14	中粘土 (medium clay)
Aca	3.0	4.5	25.2	2.1	21.5	44.2	67.3	中粘土 (medium clay)
Birmn	0.4	1.5	31.3	14.9	10.7	51.2	78.8	中粘土 (medium clay)

发生层 (Horizon)	PH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容重 (g/cm ³)	硬度 (kg/cm ²)	总孔隙 (%)	毛管水 (%)	田间水 (%)	田间水 (%)	透水性 (mm/hr)
Ap	8.8	2.59	0.16	0.15	2.22	1.48	28.94	45.8	21.3	26.3	28.6	13.5
A	9.7	3.10	0.19	0.15	3.35	1.31	1.44	50.8	36.3	40.1	39.4	0
Aca	9.7	0.80	0.05	0.09	2.37	1.48	3.87	46.2	30.6	33.3	32.4	0.3
Birmn	9.2	0.42	0.03	0.11	2.46	1.54	4.27	45.0	27.5	29.1	28.3	0



盐化草甸土
摄于黑龙江省集贤县二九一农场

Salinized meadow soil
Place: 291 State Farm, Jixian County, Heilongjiang Province.

剖面形态:

Ap层: 暗褐色, 石灰性, 块状结构, 根系较多。

A层: 暗褐色, 石灰性, 无结构, 少量根系。

Aca层: 黄褐色, 石灰性, 少量铁锰结核, 核状结构。

Birmn层: 黄褐色, 石灰性, 大量锈斑, 微核状结构。

Profile formation of the soil

Ap layer: 2.5YR/1, calcareous, blocky structure, quite a few roots.

A layer: 2.5YR/1, calcareous, structureless, a few roots.

Aca layer: 5YR4/3, calcareous, a few Fe-Mn concretions, nucleus structure.

Birmn layer: 5YR4/3, calcareous, considerable rust spots, slight nucleus structure.

物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各级筛粒含量百分数 (Particle-size) (%)							质地 (Texture)
	1-0.25	0.25-0.075	0.075-0.02	0.02-0.005	0.005-0.001	<0.001	>0.01	
	mm	mm	mm	mm	mm	mm	mm	
Ap	2.3	43.3	28.0	16.6	10.8	19.0	55.4	重粘壤土 (heavy clay loam)
Aw	4.9	5.9	20.4	12.5	18.8	24.5	55.8	重粘壤土 (heavy clay loam)
Bg	0.5	6.5	31.5	14.0	20.0	26.2	81.1	轻粘土 (light clay)
Cg	0.5	1.5	30.0	12.8	18.3	20.1	68.3	轻粘土 (light clay)

发生层 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容重 (g/cm ³)	比重 (kg/cm ³)	总孔隙 (%)	总孔隙水 (%)	田间水 (%)	田间水 (%)	透水性 (mm/hr)
Ap	5.7	7.84	0.22	0.17	2.05	1.35	4.90	48.07	32.4	34.0	31.5	0.16
Aw	5.7	1.22	0.08	0.12	2.07	1.06	39.30	48.4	35.2	35.8	32.6	0.38
Bg	6.5	0.49	0.07	0.12	2.07	1.44	15.05	47.5	30.0	32.3	27.9	3.75
Cg	6.0	0.63	0.06	0.12	2.02	1.57	4.27	42.00	34.5	26.2	25.0	4.81

白浆化草甸土
 摄于黑龙江省富锦县七星农场
 Albic meadow soil
 Place: Qixing State Farm, Fu-
 jin County, Heilongjiang Province.

剖面形态:
 Ap 层: 黑褐色, 少量锈斑与结核,
 核状结构, 根系多。
 Aw 层: 褐灰色, 多量锈斑与结核,
 弱片状结构, 根系较少。
 Bg 层: 灰黄褐色, 大量二氧化硅和
 铁锰锈斑, 核状结构。
 Cg 层: 黄褐色, 大量锈斑, 块状结
 构。

Profile formation of the soil
 Ap layer: 10YR3.5/1, a few rust
 spots and concretions, nucleus
 structure, considerable roots.
 Aw layer: 10YR6/1.5, consider-
 able rust spots and concretions,
 slightly plate structure, a few roots.
 Bg layer: 10YR5/2, considera-
 ble SiO₂ and Fe-Mn rust spots, nu-
 cleus structure.
 Cg layer: 2.5Y5/2.5, consider-
 able rust spots, blocky structure.





泛滥地草甸土
 位于黑龙江省汤原县望江乡
 Overflow meadow soil
 Place: Wangjiang Country, Tangyuan County, Heilongjiang Province.

剖面形态:
 Ap 层: 暗灰黄, 有铁锈, 无结构, 根系多
 AB 层: 暗黄色, 少量铁锈, 片状结构, 根系多
 C 层: 暗黄褐, 有二氧化硅粉末, 核状结构
 C 层: 暗黄褐, 有锈斑, 无结构
 C 层: 暗黄褐, 铁盘层, 无结构。

Profile formation of the soil
 Ap layer: 2.5Y4/2, Fe-rust spots, structureless considerable roots.
 AB layer: 2.5Y6/2, a few Fe-rust, plate structure quite a few roots.
 C layer: 10YR5/3, SiO₂ dust, nucleus structure.
 C layer: 10YR5/4, rust spots, structureless.
 C layer: 10YR4.5/4, iron pan, structureless.

物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各級顆粒含量百分數 (Particle size)							質地 (Texture)
	1-0.25 mm	0.25-0.05 mm	0.05-0.01 mm	0.01-0.005 mm	0.005-0.001 mm	0.001 mm	0.001 mm	
Ap	1.4	42.7	46.2	14.4	14.8	15.6	34.7	中粘壤土 (medium clay loam)
AB	0.8	8.4	23.9	10.7	9.7	21.0	21.4	中粘壤土 (medium clay loam)
C	0.1	41.1	43.0	6.7	4.0	4.7	15.2	砂壤土 (sand loam)
C	0.2	10.1	16.4	4.1	0.8	8.3	1.5	壤砂土 (loam sand)
C	23.2	44.0	30.1	4.1	4.8	2.6	11.3	砂壤土 (sand loam)

发生层 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容重 (g/cm ³)	孔隙度 (%)	总孔隙 (%)	非水孔隙 (%)	饱和水 (%)	田间水 (%)	透水性 (cm/hr)
Ap	6.2	21.44	0.15	0.1	2.86	1.38	1.41	66.9	46.4	33.0	66.4	12.0
AB	6.5	6.25	0.06	0.07	0.30	1.35	1.31	48.55	33.8	46.4	66.0	10.0
C	6.7	0.86	0.02	0.08	3.08	1.17	3.08	88.28	29.0	41.1	67.1	4.11
C	6.8	0.13	0.01	0.01	2.88	1.37	1.46	58.45	31.4	42.4	66.5	6.25
C	6.7	0.50	0.01	—	2.81	1.47	3.03	44.1	29.0	27.0	66.1	1.00

冈地白浆土

摄于黑龙江省宝清县朝

阳乡

Typical planosol

Place: Chaoyang Countryside, Baoqing County, Heilongjiang Province.

剖面形态:

A_p 层: 褐灰色, 团粒结构, 根系多

A_w 层: 褐灰色, 无结构, 紧实, 铁锰结核

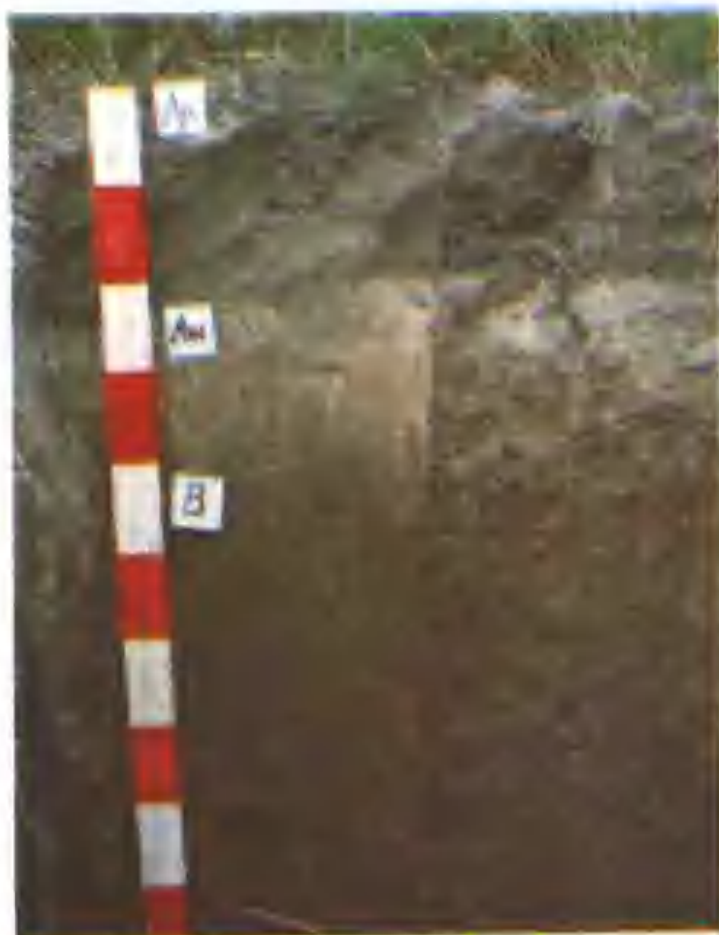
B 层: 暗褐色, 块状结构, 有胶膜和白色粉末

Profile formation of the soil

A_p layer: 5YR4/1, granular structure, a lot of roots.

A_w layer: 7.5YR5/1, structureless, compact, Fe-Mn concretions.

B layer: 7.5YR3/3, blocky structure, dark coatings on surface and white dust.



物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各级颗粒含量百分数 (Particle size)								质地 (Texture)
	(> 0.25 mm)	(0.25 - 0.075 mm)	(0.075 - 0.05 mm)	(0.05 - 0.025 mm)	(0.025 - 0.01 mm)	(0.01 - 0.005 mm)	(< 0.005 mm)	(< 0.002 mm)	
A _p	3.3	4.44	28.78	19.59	33.55	10.87	62.02	粘壤土 (loam)	
A _w	7.29	11.24	28.61	18.11	27.99	11.77	64.4	粘壤土 (loam)	
B	0.56	0.57	11.35	12.94	28.82	40.46	70.49	粉 (silty)	

发生层 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容重 (g/cm ³)	密度 (kg/cm ³)	总孔隙度 (%)	毛管水 (%)	非毛管水 (%)	田间持水率 (%)	透水性 (mm/hr)
A _p	6.4	4.39	0.291	0.176	0.324	1.08	1.26	50.17	41.4	48.6	48.3	
A _w	6.4	1.49	0.085	0.101	2.940	1.54	1.85	28.51	18.5	28.2	28.5	
B	6.2	1.34	0.091	0.094	1.911	1.56	1.86	40.51	25.0	34.4	34.5	



草甸白浆土

摄于黑龙江省富锦县七星农场

Meadow planosol

Place: Qixing State Farm,
Fujin County, Heilongjiang
Province.

剖面形态:

Ap 层: 黑褐色, 少量锈斑与结核, 核状结构, 根系多。

Aw 层: 黄灰色, 大量锈斑与结核, 弱片状结构, 少量根系。

B 层: 褐灰色, 大量二氧化硅与锈斑, 核状结构。

BC 层: 褐灰色, 大量锈斑, 块状结构。

Profile formation of the soil

Ap layer: 5YR3.5/1, a few rust spots and concretions, nucleus structure, considerable roots.

Aw layer: 2.5Y5/1, considerable rust spots and concretions, slightly plate structure, a few roots.

B layer: 7.5YR4.5/1, considerable SiO₂ and rust spots, nucleus structure.

BC layer: 7.5YR3.5/1, considerable blocky structure.

物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各级颗粒含量百分数 (Particle size) (%)							质地 (Texture)
	1-0.25 mm	0.25-0.05 mm	0.05-0.01 mm	0.01-0.005 mm	0.005-0.001 mm	0.001 mm	0.001 mm	
Ap	0	9.5	35.2	48.6	22.8	43.9	55.3	重粘壤土 (heavy clay loam)
Aw	3.0	19.4	46.7	29.9	18.8	38.2	47.9	轻粘土 (light clay loam)
B	0.1	1.9	21.8	16.2	49.0	41.4	76.2	中粘土 (medium clay)
BC	0.4	9.1	31.8	42.7	17.8	38.3	56.7	重粘壤土 (heavy clay loam)

发生层 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容重 (g/cm ³)	硬度 (kg/cm ²)	总孔隙 (%)	毛管水 (%)	饱和水 (%)	田间水 (%)	透水性 (mm/hr)
Ap	5.9	3.69	0.20	0.13	2.47	1.70	7.92	53.57	33.8	36.1	32.8	7.8
Aw	6.5	1.01	0.07	0.07	2.58	1.57	23.2	42.27	23.7	24.8	23.6	0.3
B	6.0	1.14	0.06	0.10	2.43	1.35	15.8	48.86	34.3	35.5	33.0	1.2
BC	6.8	0.42	0.05	0.08	2.79	1.64	10.5	39.25	25.3	24.3	23.6	0.07

潜育白浆土

摄于黑龙江省富锦县前进农场

Gleyed planosol

Place: Qianjin State Farm,
Fujin County, Heilongjiang
Province.

剖面形态:

A_p 层: 黑褐色, 粒状结构, 少量锈斑, 根系多。

A_w 层: 褐灰色, 片状结构。

B_g 层: 灰黄褐色, 核状结构, 潜育斑。

Profile formation of the soil

A_p layer: 5YR3/1, granular structure, considerable roots, a few rust spots.

A_w layer: 10YR6/1, plate structure, compact.

B_g layer: 10YR6/2, nucleus structure, gleyed spots.



物理化学分析 (Physical-Chemical Analysis Data)

发生层 (Horizon)	各级颗粒含量百分数 (Particle size) (%)							质地 (Texture)	
	1-0.25 mm	0.25-0.05 mm	0.05-0.01 mm	0.01-0.005 mm	0.005-0.001 mm	<0.001 mm	<0.001 mm		
A _p	2.07	2.74	48.12	28.83	15.69	12.56	53.93	轻粘土 (light clay)	
A _w	0.30	1.00	45.29	33.47	17.46	20.54	62.81	轻粘土 (light clay)	
B _g	0.16	0.81	41.11	2.70	11.96	56.55	76.49	轻粘土 (light clay)	

发生层 (Horizon)	pH (H ₂ O)	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容重 (g/cm ³)	密度 (kg/cm ³)	总孔隙 (%)	毛管水 (%)	饱和水 (%)	田间水 (%)	透水性 (mm/hr)
A _p	6.0	3.99	0.463	0.209	2.46	0.81	12.5	65.0	60.2	81.5	54.3	15.2
A _w	6.2	1.54	0.460	0.135	2.88	1.45	17.5	44.7	26.6	30.8	26.2	0
B _g	6.8	1.16	0.073	0.087	2.55	1.40	15.4	48.3	33.0	37.6	32.0	2.2

物理化学分析 (Physical-Chemical Analysis Data)

土 层 号 (Horizon)	各 项 颗 粒 含 量 的 分 数 (Particle size)							质 地 (Texture)
	1-0.075	0.075-0.425	0.425-0.850	0.850-0.0020	0.0020-0.0043	0.0043-0.0075	0.0075-0.020	
	mm	mm	mm	mm	mm	mm	mm	
Ap	1.87	6.29	21.28	14.82	13.54	41.22	19.13	中壤土 (middle loam)
AB	1.24	6.100	21.36	9.526	14.34	38.07	13.07	轻壤土 (light clay)
B	1.11	6.10	20.75	11.02	13.94	39.03	18.03	轻粘土 (light clay)

土 层 号 (Horizon)	pH	有机质 (%)	N (%)	P ₂ O ₅ (%)	K ₂ O (%)	容 重 (g/cm ³)	紧 度 (kg/cm ²)	总孔隙 (%)	毛管水 (%)	田间水 (%)	田间水 (mm/hr)	透 气 性 (mm/hr)
Ap	6.7	4.086	0.200	2.494	3.03	1.2	1.1	58.4		21.1	30.4	40.3
AB	6.0	5.149	0.146	2.635	2.53	1.4	1.0	52.3		27.0	32.0	18.2
B	7.1	6.383	0.154	2.306	3.13	1.5	0.7	47.0		34.7	38.8	17.3



黑 土

位于黑龙江省集贤县沙岗乡

Black soil

Place: Shagang Countryside, Jixian County, Heilongjiang Province.

剖面形态:

Ap 层: 黑褐色, 有机质较多, 团粒结构, 根系多。

AB 层: 灰黄褐色, 粒状结构, 铁锰结核, 有机质呈舌状过渡。

B 层: 黄褐色, 块状结构, 含二氧化硅粉末。

Profile formation of the soil

Ap layer: 7.5YR3/1, humic layer, with a lot of roots, granular structure.

AB layer: 10YR4/2, granular structure, Fe-Mn concretions, ligulate distribution of O.M.

B layer: 10YR5/4, blocky structure, SiO₂ dust.