9 Anthropogenic Soils of Europe

Bulgaria

N A R R A T I V E P E D O N D E S C R I P T I O N

Pedon: Rasovo
Soil Survey Number S89-FN-245-001
Location: Bulgaria

NSSL Pedon Number: 90P0157
Print Date: 08/20/02

Latitude: 43-45-00-N
Longitude: 023-15-00-E
Physiography: in level or undulating uplands
Microrelief: on upper third of component
Slope: 2% convex south facing
Elevation: 150 m MSL
Precipitation: cm - Xeric Moisture Regime.
Drainage: Well drained
Land Use: Cropland
Stoniness: Erosion or Deposition:
Runoff:
Parent Material: loess
Classification: Fine-silty, mixed, mesic Pachic Calcixeroll
Vegetation: MESA
Diagnostic Horizons: 0 to 69 cm Mollic, 69 to 201 cm Calcic
Described By: T. Boyadgiev
Sample Date: 10/89
MAT: 11-12 degrees Celsius

Ap -- 0 to 18 cm; brown (10YR 5/3) dry silt loam and dark brown (10YR 3/3) moist silt loam; weak fine and medium crumb structure; many fine roots throughout; few fine continuous tubular and common coarse tubular pores; many fine and medium worm casts; gradual smooth boundary. 90P1062

Ap2 -- 18 to 41 cm; dark brown (10YR 3/3) moist silt loam; moderate fine and medium crumb structure; many fine and medium roots throughout; few fine continuous tubular and common coarse tubular pores; many fine and medium worm casts; gradual smooth boundary. 90P1063

BAk -- 41 to 69 cm; dark brown (10YR 3/3) moist silt loam; weak medium and coarse subangular blocky structure parting to moderate fine blocky; many fine roots throughout; few fine continuous tubular and many coarse tubular pores; many distinct lime or carbonate coats on faces of peds; many fine and medium worm casts; gradual smooth boundary. 90P1064

Bk1 -- 69 to 119 cm; yellowish brown (10YR 5/4) moist silt loam; weak coarse subangular blocky structure; many fine roots throughout; few fine continuous tubular and many coarse tubular pores; discontinuous distinct lime or carbonate coats on faces of peds; many fine and medium worm casts and many soft masses of carbonate; gradual smooth boundary. 90P1065

Bk2 --119 to 147 cm; brownish yellow (10YR 6/8) moist silt loam; weak medium crumb structure; few fine continuous tubular and many coarse tubular pores; many distinct lime or carbonate coats on faces of peds; many fine and medium worm casts and many soft masses of carbonate; gradual smooth boundary. 90P1066

BCk --147 to 201 cm; brownish yellow (10YR 6/6) moist silt loam; weak medium crumb structure; many fine and medium worm casts and many soft masses of carbonate. 90P1067

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***

S89FN-245-001 (BULGARIA)

PRINT DATE 08/20/02

SAMPLED AS : RASOVO ;
REVISED TO : ; FINE-SILTY, MIXED MESIC PACHIC CALCIXEROLL

SSL - PROJECT 90P 27, (CP90FN040) BULGARIA
- PEDON 90P 157, SAMPLES 90P 1062- 1067
- GENERAL METHODS 1B1A, 2A1, 2B

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

-1-- -2-- -3-- -4-- -5-- -6-- -7-- -8-- -9-- -10- -11- -12- -13- -14- -15- -16- -17- -18- -19- -20

SAMPLE NO.	DEPTH (CM)	HORIZON	TOTAL CLAY LT .002	TOTAL SILT .002 -.05	TOTAL SAND .05 -2	CLAY FINE LT .0002	CLAY CO3 LT .002	SILT FINE .002 -.02	SILT COARSE .02 -.05	SAND VF .05 -.10	SAND F .10 -.25	SAND M .25 -.50	SAND C .5 -1	SAND VC 1 -2	COARSE FRACTIONS(MM) WEIGHT 2 -5	COARSE FRACTIONS(MM) WEIGHT 5 -20	COARSE FRACTIONS(MM) WEIGHT 20 -75	>2MM WT .1- 75	PCT OF WHOLE SOIL
			<- - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				
90P1062S	0- 18	AP1	25.5	57.4	17.1	14.8		25.2	32.2	15.8	0.7	0.3	0.1	0.2	--	--	--	1	-
90P1063S	18- 40	AP2	25.9	57.1	17.0	15.3	0.6	25.1	32.0	15.5	0.9	0.3	0.2	0.1	TR	TR	--	1	-
90P1064S	40- 68	BAK	24.9	58.8	16.3	12.8	1.4	26.6	32.2	14.9	0.9	0.3	0.1	0.1	--	--	--	1	-
90P1065S	68-118	BK1	22.8	59.8	17.4	11.0	5.1	28.6	31.2	15.6	1.2	0.3	0.2	0.1	TR	1	--	3	1
90P1066S	118-148	BK2	20.7	59.6	19.7	9.9	4.3	29.7	29.9	17.7	1.2	0.3	0.3	0.2	1	2	--	5	3
90P1067S	148-200	BCK	19.8	61.0	19.2	10.0	4.0	28.4	32.6	17.1	1.3	0.4	0.2	0.2	1	1	--	4	2

DEPTH (CM)	ORGN C 6A1c PCT	TOTAL N 6B3a <2MM	EXTR P 6S3 PPM	TOTAL S 6R3a	EXTRACTABLE FE 6C2b	EXTRACTABLE AL 6G7a	EXTRACTABLE MN 6D2a	RATIO/CLAY CEC 8D1	RATIO/CLAY 15 BAR 8D1	ATTERBERG LL 4F1	ATTERBERG PI 4F	BULK DENSITY FIELD MOIST 4A3a	BULK DENSITY 1/3 BAR 4A1d	BULK DENSITY OVEN DRY 4A1h	COLE WHOLE SOIL 4D1	WATER CONTENT FIELD MOIST 4B4	WATER CONTENT 1/10 BAR 4B1c	WATER CONTENT 1/3 BAR 4B1c	WATER CONTENT 15 BAR 4B2a	WRD WHOLE SOIL 4C1
	PCT	<2MM	PPM	<- PERCENT	OF	<2MM -->				PCT <0.4MM		<- - G/CC - - ->			CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 18	1.43	0.142						0.78	0.44				1.37	1.53	0.038			26.2	11.1	0.21
18- 40	1.43	0.142						0.76	0.44				1.23	1.36	0.034			27.5	11.5	0.20
40- 68	1.09	0.108						0.61	0.49				1.45	1.59	0.031			25.3	12.3	0.19
68-118	0.62							0.49	0.45				1.28	1.36	0.020			27.8	10.3	0.22
118-148	0.40							0.47	0.43				1.34	1.38	0.010			21.7	8.9	0.17
148-200	0.30							0.47	0.42				1.40	1.45	0.012			22.6	8.4	0.20

AVERAGES, DEPTH 25-100: PCT CLAY 21 PCT .1-75MM 2

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***

S89FN-245-001 PRINT DATE 08/20/02
SAMPLED AS : RASOVO ;
USDA-NRCS-NSSC-SOIL SURVEY LABORATORY ; PEDON 90P 157, SAMPLE 90P 1062- 1067

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20
	(- NH4OAC EXTRACTABLE BASES -)					ACID-	EXTR	(- - - -CEC - - -)			AL	-BASE SAT-		CO3 AS	RES.		COND.(- - - -PH - - -)			
	CA	MG	NA	K	SUM	ITY	AL	SUM	NH4-	BASES	SAT	SUM	NH4	CACO3	OHMS		MMHOS	KCL	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC	+ AL			OAC	<2MM	/CM		/CM	IN	.01M	
(CM)	6N2e	6O2d	6P2b	6Q2b		6H5a	6G9b	5A3a	5A8b	5A3b	5G1	5C3	5C1	6E1g	8E1		8I	8C1g	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - - ->										<- - - - -PCT - - - ->								1:2	1:1
0- 18		2.3	TR	0.4		0.3			19.8				100	1				7.1	7.3	7.4
18- 40		2.2	TR	0.4					19.7			100	100	1				7.1	7.4	7.8
40- 68		2.2	TR	0.3					15.1			100	100	8				7.4	7.6	8.0
68-118		2.3	--	0.2					11.2			100	100	19				7.5	7.6	8.2
118-148		2.9	--	0.2					9.8			100	100	22				7.5	7.7	8.1
148-200		3.5	--	0.2					9.4			100	100	19				7.5	7.7	8.1

ANALYSES: S= ALL ON SIEVED <2mm BASIS

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***

S89FN-245-001 PRINT DATE 08/20/02
SAMPLED AS : RASOVO ;
USDA-NRCS-NSSC-SOIL SURVEY LABORATORY ; PEDON 90P 157, SAMPLE 90P 1062- 1067

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20
	< - CLAY MINERALOGY (<.002mm) - >																			
	FRACT < - - - - - - X-RAY - - - - - -><- - - THERMAL - - - -><- - - - - - - - ELEMENTAL - - - - - - - -><- -> EGME INTER																			
SAMPLE	ION < ><- DTA - -><- TGA - -> SiO2 AL2O3 Fe2O3 MgO CaO K2O Na2O < > RETN PRETA																			
	< - - - - - - 7A2i - - - - - -><- 7A6 - ><- 7A4b - ><- - - - - - - - - - 7C3 - - - - - - - - -><- > 7D2 TION																			
NUMBER	<- - ><- - - - - peak size - - - - -><- - - - Percent - - - -><- - - - - - - - - - Percent - - - - - - - - -><- -><- ->																			
90P1062	TCLY	MT 3	KK 2	MI 1	MC 1	QZ 1						9.4	6.1			1.1				
90P1064	TCLY	MT 3	KK 2	CA 2	MI 1	CL 1						13.0	7.3			1.3				
90P1064	TCLY	QZ 1																		
90P1067	TCLY	MT 3	CA 3	KK 3	MI 2	CL 1						14.0	8.1			2.1				
90P1067	TCLY	QZ 1																		

	< - SAND - SILT MINERALOGY (2.0-0.002mm) - >																			
	FRACT < - - - - - - X-RAY - - -><- - - - THERMAL - - - -><- - - - - - - - - OPTICAL - - - - - - - - -><- > INTER																			
SAMPLE	ION < ><- DTA - -><- TGA - ->TOT RE< - - - - - - GRAIN COUNT - - - - - -><- > PRETA																			
	< - - - - - 7A2i - - - - - ><- 7A3b - ><- 7A4b - ><- - - - - - - - - - 7B1a - - - - - - - - -><- > TION																			
NUMBER	< - -><- - - - Peak Size - - -><- - - - Percent - - - -><- - - - - - - - - - Percent - - - - - - - - -><- - - - - - - - -><- ->																			
90P1062	VFS										73	QZ66	FK 8	MS 6	BT 5	KK 3	AR 3			
90P1062	VFS											CA 2	QI 2	PR 2	OP 1	HN 1	GN 1			
90P1062	VFS											RUtr	GStr	CDtr	CLtr	TMtr	POtr			
90P1062	VFS											ZRtr	FPtr							
90P1064	VFS										66	QZ61	FK12	MS 9	BT 5	CA 4	PR 2			
90P1064	VFS											OP 2	KK 1	QI 1	GN 1	AR 1	HNtr			
90P1064	VFS											TMtr	GEtr	CBtr	CDtr	FPtr				
90P1067	VFS										52	QZ47	MS12	FK11	CA 9	BT 7	CB 3			
90P1067	VFS											OP 2	AR 2	QI 2	PR 2	KK 1	HN 1			
90P1067	VFS											OT 1	GEtr	GNtr	RUtr	ZRtr				

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm VFS Very Fine Sand, 0.05-0.10mm

MINERAL INTERPRETATION:

MT	montmorillon	KK	kaolinite	MI	mica	MC	mont-chlorit	QZ	quartz	FK	potas feldsp
MS	muscovite	BT	biotite	AR	wthr aggrega	CA	calcite	QI	iron-coat qz	PR	pyroxene
OP	opaques	HN	hornblende	GN	garnet	RU	rutile	GS	glass	CD	chalcedony
CL	chlorite	TM	tourmaline	PO	plant opal	ZR	zircon	FP	plag-feldspa	GE	goethite
CB	carb-aggrega	OT	other								

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

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S89FN-245-001 (BULGARIA)

PRINT DATE 08/20/02

SAMPLED AS : RASOVO ;

SSL - PROJECT 90P 27, (CP90FN040) BULGARIA
- PEDON 90P 157, SAMPLES 90P 1062- 1067
- GENERAL METHODS 1B1A, 2A1, 2B

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-1-- -2-- -3-- -4-- -5-- -6-- -7-- -8-- -9-- -10- -11- -12- -13- -14- -15- -16- -17- -18- -19- -20

SAMPLE NO.	HZ NO	ACID OPT DEN 8J	OXALATE FE 6C9a	EXTRACTION SI 6V2	AL 6G12	PHOSPHOUS RET 6S4	CIT-ACID 6S5	KCL MN 6D3	TOTAL C 6A2d	WATER CONTENT 0.06 BAR 4B1c	1-BAR 4B1a	2-BAR 4B1a	15 BAR 4B2b	PIPETTE CLAY 3A1c	PIPETTE SILT	PIPETTE SAND	HYDROMETER CLAY	HYDROMETER SILT	HYDROMETER SAND	MIN SOIL CONT 8F1	AGGRT STABL <5mm 4G1
		<- P C T o f < 2 m m ->				<- P P M ->			< - - - - - - - - - - P E R C E N T o f < 2 m m - - - - - - - - >											<20mm>	< PCT>
90P1062	1								1.58													4
90P1063	2								1.57													13
90P1064	3								2.21													
90P1065	4								3.10													
90P1066	5								3.16													
90P1067	6								2.88													

N A R R A T I V E P E D O N D E S C R I P T I O N

Pedon: Oreshak — NSSL Pedon Number: 90P0160
Soil Survey Number S89-FN-245-004 — Print Date: 08/20/02
Location: Bulgaria
Latitude: 42-55-00-N — Longitude: 024-55-00-E
Physiography: in river valley
Microrelief: land leveled or smooth
Slope: 1% plane — Elevation: 198 m MSL
Precipitation: cm - Aquic Moisture Regime.
Water Table Depth: — Permeability: Slow
Drainage: Somewhat poorly drained — **Land Use: Cropland**
Stoniness: Erosion or Deposition: — Runoff:
Parent Material: alluvium
Classification: Fine, montmorillonitic, mesic Aeric Ochraqualf
Diagnostic Horizons: **0 to 30 cm Ochric**, 30 to 137 cm Argillic
Described By: T. Boyadgiev — Sample Date: 9/89

Ap1 -- 0 to 15 cm; brown (10YR 5/3) and light gray (10YR 7/2) broken face moist silt loam; weak very fine and fine granular structure; few very fine and fine discontinuous tubular pores; gradual smooth boundary.
90P1084

Ap2 -- 15 to 30 cm; brown (10YR 5/3) and light gray (10YR 7/2) moist silt loam; weak fine and medium granular structure; few fine roots between peds; few fine and medium discontinuous tubular pores; common medium and coarse rounded iron-manganese concretions; clear smooth boundary.
90P1085

EB1 -- 30 to 38 cm; yellowish brown (10YR 5/4) crushed, 10% strong brown (7.5YR 4/6) broken face and 90% light gray (10YR 7/2) broken face moist silty clay loam; moderate coarse subangular blocky structure; common very fine and fine roots throughout; common very fine and fine discontinuous tubular pores; few medium rounded iron-manganese concretions and common medium rounded soft masses of iron-manganese; clear smooth boundary.
90P1086

EB2 -- 38 to 48 cm; brownish yellow (10YR 6/6) crushed and yellowish brown (10YR 5/6) broken face moist silty clay loam; moderate medium subangular blocky structure; few very fine and fine roots throughout; few very fine and fine discontinuous tubular pores; discontinuous distinct coats on faces of peds; common medium rounded iron-manganese concretions and many medium rounded soft masses of iron-manganese; clear smooth boundary.
90P1087

Btg1 -- 48 to 61 cm; brownish yellow (10YR 6/6) crushed, 50% yellowish red (5YR 4/6) broken face and 50% brown (7.5YR 5/2) broken face moist silty clay; weak coarse prismatic structure parting to moderate coarse subangular blocky; few fine roots throughout; few fine discontinuous tubular pores; patchy distinct coats on faces of peds and patchy distinct nonintersectng slickensides on faces of peds; few fine rounded iron-manganese concretions; gradual smooth boundary.
90P1088

Btg2 -- 61 to 91 cm; yellowish brown (10YR 5/4) crushed, 40% brown to dark brown (7.5YR 4/4) broken face and 60% grayish brown (2.5Y 5/2) broken face moist silty clay; moderate coarse prismatic structure; few fine discontinuous tubular pores; few fine rounded iron-manganese concretions; clear smooth boundary.
90P1089

Btg3 -- 91 to 137 cm; yellowish brown (10YR 5/4) crushed, 20% brown (10YR 5/3) broken face and 20% pale red (2.5YR 6/2) broken face moist silty clay and 20% pale red (2.5YR 6/2) dry silty clay; moderate coarse prismatic structure; few fine discontinuous tubular pores; few fine rounded iron-manganese concretions and few fine rounded soft masses of iron-manganese; gradual smooth boundary.
90P1090

BC --137 to 170 cm; dark yellowish brown (10YR 4/4) and dark yellowish brown (10YR 4/6) crushed moist silty clay; moderate coarse subangular blocky structure; few fine discontinuous tubular pores; few fine rounded soft masses of iron-manganese; gradual smooth boundary.
90P1091

C --170 to 201 cm; yellowish brown (10YR 5/6) moist silty clay loam; few fine discontinuous tubular pores; common fine rounded iron-manganese concretions; 5 percent pebbles sandstone.
90P1092

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***

S89FN-245-004 (BULGARIA)

PRINT DATE 08/20/02

SAMPLED AS : ORESHAK ;
REVISED TO : ; FINE, MONTMORILLONITIC, MESIC AERIC OCHRAQUALF

SSL - PROJECT 90P 27, (CP90FN040) BULGARIA
- PEDON 90P 160, SAMPLES 90P 1084- 1092
- GENERAL METHODS 1B1A, 2A1, 2B

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-1-- -2-- -3-- -4-- -5-- -6-- -7-- -8-- -9-- -10- -11- -12- -13- -14- -15- -16- -17- -18- -19- -20

SAMPLE NO.	DEPTH (CM)	HORIZON	CLAY LT .002	SILT .002 -.05	SAND .05 -2	FINE LT .0002	CO3 LT .002	FINE SILT .002 -.02	COARSE SILT .02 -.05	VF SAND .05 -.10	F SAND .10 -.25	M SAND .25 -.50	C SAND .5 -1	VC SAND 1 -2	2 -5	5 -20	20 -75	.1-75	WT PCT OF WHOLE SOIL
			<- - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				
90P1084M	0- 17	AP1	20.2	63.8	16.0	9.3		36.6	27.2	7.1	3.2	1.6	2.0	2.1	4	--	--	13	4
90P1085M	17- 29	AP2	20.0	62.9	17.1	9.3		37.1	25.8	8.3	2.8	1.6	1.9	2.5	5	--	--	13	5
90P1086M	29- 37	EB1	26.9	58.3	14.8	14.2		32.5	25.8	8.2	2.7	1.4	1.5	1.0	4	TR	--	10	4
90P1087M	37- 48	EB2	40.5	49.1	10.4	25.8		28.9	20.2	6.0	2.4	1.0	0.7	0.3	--	--	--	4	-
90P1088M	48- 62	BTG1	49.3	42.2	8.5	34.9		23.8	18.4	4.6	2.2	1.0	0.5	0.2	5	3	--	12	8
90P1089M	62- 90	BTG2	47.2	43.2	9.6	32.9		26.0	17.2	5.3	2.7	1.1	0.4	0.1	--	--	--	4	-
90P1090M	90-136	BTG3	49.4	40.2	10.4	32.9		15.8	24.4	4.8	2.6	1.2	1.1	0.7	--	--	--	6	-
90P1091M	136-170	BC	41.6	45.6	12.8	23.4		28.3	17.3	5.8	3.2	1.6	1.5	0.7	--	--	--	7	-
90P1092M	170-200	C	41.9	40.9	17.2	21.4		25.9	15.0	4.3	3.2	2.3	3.2	4.2	--	--	--	13	-

DEPTH (CM)	ORGN TOTAL C 6A1c PCT	N 6B3a <2MM	EXTR TOTAL P 6S3 PPM	S 6R3a	DITH-CIT EXTRACTABLE FE 6C2b	AL 6G7a	MN 6D2a	CEC 8D1	RATIO/CLAY 15 BAR 8D1	ATTERBERG LL 4F1	PI 4F	FIELD MOIST 4A3a	1/3 BAR 4A1d	OVEN DRY 4A1h	WHOLE SOIL 4D1	FIELD MOIST 4B4	1/10 BAR 4B1c	1/3 BAR 4B1c	15 BAR 4B2b	WRD WHOLE SOIL 4C1
				<- PERCENT	OF <2MM -->					PCT <0.4MM		<- - G/CC - - ->			CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 17	2.01	0.180		1.2	0.2	0.1	0.64	0.50				1.36	1.73	0.081				26.6	9.1	0.22
17- 29	1.79	0.165		1.5	0.2	0.1	0.60	0.54				1.36	1.61	0.056				26.2	9.6	0.21
29- 37	0.42	0.058		2.0	0.3	0.1	0.46	0.43											11.2	
37- 48	0.28	0.054		1.8	0.2	TR	0.47	0.39											14.9	
48- 62	0.23	0.055		2.0	0.2	TR	0.54	0.40				1.40	1.81	0.085				28.9	19.3	0.12
62- 90	0.20			2.8	0.6	TR	0.55	0.40				1.46	1.91	0.094				27.2	18.1	0.12
90-136	0.20			2.3	0.2	0.1	0.57	0.38				1.56	1.85	0.058				22.7	18.3	0.06
136-170	0.18			2.2	0.2	0.1	0.56	0.38				1.47	1.80	0.070				21.3	15.6	0.08
170-200	0.19			3.4	0.3	0.1	0.59	0.40				1.65	1.81	0.031				20.8	15.5	0.06

AVERAGES, DEPTH 48- 98: PCT CLAY 48 PCT .1-75MM 6

S89FN-245-004 PRINT DATE 08/20/02
SAMPLED AS : ORESHAK ;
USDA-NRCS-NSSC-SOIL SURVEY LABORATORY ; PEDON 90P 160, SAMPLE 90P 1084- 1092

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20
	(- NH4OAC EXTRACTABLE BASES -)					ACID-	EXTR	(- - - -CEC - - -)			AL	-BASE SAT-		CO3 AS	RES.		COND.	(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY	AL	SUM	NH4-	BASES	SAT	SUM	NH4	CACO3	OHMS		MMHOS	NAF	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC	+ AL			OAC	<2MM	/CM		/CM		.01M	
(CM)	6N2e	6O2d	6P2b	6Q2b		6H5a	6G9b	5A3a	5A8b	5A3b	5G1	5C3	5C1	6E1g	8E1		8I	8C1d	8C1f	8C1f
	<- - - - - - - - - - - - -MEQ / 100 G - - - - - - - - - - - - ->										<- - - - -PCT - - - ->								1:2	1:1
0- 17	4.1	0.5	--	0.2	4.8	13.4	2.0	18.2	13.0	6.8	29	26	37					8.2	4.2	4.4
17- 29	3.8	0.5	TR	0.2	4.5	13.0	2.2	17.5	12.0	6.7	33	26	37					8.3	4.1	4.3
29- 37	5.2	1.4	--	0.2	6.8	10.1	2.2	16.9	12.5	9.0	24	40	54					8.5	4.3	4.7
37- 48	8.9	3.7	0.1	0.4	13.1	12.9	2.7	26.0	19.0	15.8	17	50	69	--				8.6	4.3	4.8
48- 62	12.9	6.6	0.3	0.6	20.4	13.5	2.8	33.9	26.8	23.2	12	60	76					8.4	4.3	5.1
62- 90	13.3	6.7	0.4	0.5	20.9	12.2	1.9	33.1	25.8	22.8	8	63	81	--				8.5	4.4	5.3
90-136	16.8	7.8	0.4	0.4	25.4	10.3	0.8	35.7	28.2	26.2	3	71	90	--				8.2	4.6	5.6
136-170	17.0	6.9	0.4	0.3	24.6	5.6		30.2	23.4			81	100					8.5	5.5	6.3
170-200	18.7	7.1	0.4	0.3	26.5	5.3		31.8	24.8			83	100					8.7	6.1	6.9

	(- -NA PYROPHOSPHATE EXTRACTABLE- -)					(- -) INDEX
	C	FE	AL	FE+AL	FE+AL	AL+C	OF
DEPTH				(- -DIVIDED BY- -)			ACCUM
(CM)	6A4a	6C8a	6G10	DI-CI	PCT	PCT	
	<- PCT OF <2MM ->			FE+AL	CLAY	CLAY	
0- 17		0.3	0.2	0.4			

*** P R I M A R Y   C H A R A C T E R I Z A T I O N   D A T A ***

S89FN-245-004 PRINT DATE 08/20/02
SAMPLED AS : ORESHAK ;
USDA-NRCS-NSSC-SOIL SURVEY LABORATORY ; PEDON 90P 160, SAMPLE 90P 1084- 1092

SAMPLE NUMBER	-1-- FRACTION	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20
	CLAY MINERALOGY (<.002mm)																			
	FRACT ION	X-RAY					THERMAL				ELEMENTAL								EGME RETN	INTER PRETA TION
		7A2i					DTA 7A6		TGA 7A4b		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O		7D2	
		peak size					Percent				Percent									
90P1084	TCLY	KK 3	VR 3	MI 2	QZ 1							20.0	6.6			2.0				
90P1088	TCLY	MT 5	MI 3	KK 3	GE 1							22.0	8.9			2.3				
90P1089	TCLY	MT 4	MI 3	KK 3	MM 1	QZ 1						21.0	8.7			2.3				
90P1092	TCLY	MT 4	MI 3	KK 3	CA 3	VR 1						24.0	8.6			2.7				
90P1092	TCLY	QZ 1																		

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

KK kaolinite VR vermiculite MI mica QZ quartz MT montmorillon GE goethite
MM mont-mica CA calcite

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

INTERPRETATION (BY HORIZON):

PEDON MINERALOGY
BASED ON SAND/SILT:
BASED ON CLAY:
FAMILY MINERALOGY:
COMMENTS:

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***

S89FN-245-004 (BULGARIA)

PRINT DATE 08/20/02

SAMPLED AS : ORESHAK ;

SSL - PROJECT 90P 27, (CP90FN040) BULGARIA
- PEDON 90P 160, SAMPLES 90P 1084- 1092
- GENERAL METHODS 1B1A, 2A1, 2B

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

-1-- -2-- -3-- -4-- -5-- -6-- -7-- -8-- -9-- -10- -11- -12- -13- -14- -15- -16- -17- -18- -19- -20

SAMPLE NO.	HZ NO	ACID OPT DEN 8J	OXALATE FE 6C9a	EXTRACTION SI 6V2	EXTRACTION AL 6G12	PHOSPHOUS RET 6S4	PHOSPHOUS CIT-ACID 6S5	KCL MN 6D3	TOTAL C 6A2d	WATER CONTENT 0.06 BAR 4B1c	WATER CONTENT 1-BAR 4B1a	WATER CONTENT 2-BAR 4B1a	WATER CONTENT 15 BAR 4B2b	WATER DISPERSIBLE PIPETTE CLAY 3A1c	WATER DISPERSIBLE PIPETTE SILT	WATER DISPERSIBLE PIPETTE SAND	WATER DISPERSIBLE HYDROMETER CLAY	WATER DISPERSIBLE HYDROMETER SILT	WATER DISPERSIBLE HYDROMETER SAND	MIN SOIL CONT 8F1	AGGRT STABL <5mm 4G1
		<- P C T o f < 2 m m ->				<- P P M ->		< - - - - - - - - - - P E R C E N T o f < 2 m m - - - - - - - - >						<- - -	- - ->	<- - -	SML - - ->			<20mm>	< PCT>
90P1084	1	0.12	0.57	0.02	0.19	35		5.1	1.89				10.1								83
90P1085	2	0.10	0.60	0.02	0.19	33		4.1	1.71				10.7								86
90P1086	3	0.06	0.61	0.03	0.19	37		1.1	0.47				11.5								
90P1087	4	0.06	0.56	0.05	0.23	43		0.7	0.33				15.8								
90P1088	5	0.05	0.50	0.07	0.25	46		0.2	0.32				19.9								
90P1089	6	0.06	0.59	0.07	0.21	37		0.5	0.31				18.8								
90P1090	7	0.07	0.64	0.07	0.20	36		0.9	0.37				18.7								
90P1091	8	0.06	0.46	0.07	0.15	31			0.25				15.6								
90P1092	9	0.05	0.37	0.07	0.15	31			0.27				16.9								

N A R R A T I V E P E D O N D E S C R I P T I O N

Pedon: Metkovetch
Soil Survey Number S89-FN-245-011
Location: Bulgaria

NSSL Pedon Number: 90P0167
Print Date: 08/20/02

Latitude: 43-40-00-N
Slope: 1%
Precipitation: cm - Ustic Moisture Regime.
Drainage: Well drained
Stoniness: Erosion or Deposition:
Parent Material: loess
Classification: Fine, montmorillonitic, mesic Vertic Argiustoll
Diagnostic Horizons: **0 to 33 cm Mollic**, 33 to 191 cm Argillic
Described By: T. Boyadgiev

Longitude: 023-10-00-E
Elevation: 400 m MSL
Land Use: Cropland
Runoff:
Sample Date: 10/89

Ap1 -- 0 to 13 cm; very dark grayish brown (10YR 3/2) moist silty clay loam; moderate medium crumb structure; many fine roots throughout; common fine tubular pores; few fine rounded iron-manganese concretions; 2 percent pebbles; gradual smooth boundary.
90P1129

Ap2 -- 13 to 33 cm; very dark grayish brown (10YR 3/2) moist silty clay loam; moderate medium crumb structure; many fine roots throughout; few fine and medium tubular pores; common fine and medium rounded iron-manganese concretions and few fine rounded worm casts; 2 percent pebbles; clear smooth boundary.
90P1130

Bt1 -- 33 to 61 cm; 10% brown (10YR 5/3), 20% very dark grayish brown (10YR 3/2) and 70% dark grayish brown (10YR 4/2) moist sandy clay loam; moderate medium and coarse subangular blocky structure; few fine roots throughout; few fine and medium tubular pores; continuous nonintersecting slickensides on faces of peds; few medium rounded iron-manganese concretions and few fine rounded worm casts; 2 percent pebbles; clear smooth boundary.
90P1131

Bt2 -- 61 to 91 cm; very dark grayish brown (10YR 3/2) moist silty clay; moderate coarse prismatic structure; few fine roots throughout; few fine tubular pores; few fine and medium rounded iron-manganese concretions; 2 percent pebbles; gradual smooth boundary.
90P1132

Bt3 -- 91 to 119 cm; very dark grayish brown (10YR 3/2) moist silty clay; moderate coarse prismatic structure; few fine roots throughout; few fine tubular pores; continuous nonintersecting slickensides on faces of peds; few fine rounded iron-manganese concretions; 2 percent pebbles.
90P1133

Bt4 --119 to 150 cm; dark yellowish brown (10YR 4/4) moist silty clay loam; moderate coarse prismatic structure; few fine roots throughout; few fine tubular pores; continuous nonintersecting slickensides on faces of peds; few fine rounded iron-manganese concretions; 2 percent pebbles.
90P1134

BC --150 to 191 cm; dark yellowish brown (10YR 4/4) interior and brown (10YR 5/3) exterior moist silty clay loam; weak medium subangular blocky structure; few fine roots throughout; few fine tubular pores; patchy nonintersecting slickensides on faces of peds and common patchy lime or carbonate coats on faces of peds; common fine; 2 percent pebbles.
90P1135

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***

S89FN-245-011 (BULGARIA)

PRINT DATE 08/20/02

SAMPLED AS : METKOVETCH ;
REVISED TO : ; FINE, MONTMORILLONITIC, MESIC VERTIC ARGIUSTOLL

SSL - PROJECT 90P 27, (CP90FN040) BULGARIA
- PEDON 90P 167, SAMPLES 90P 1129- 1135
- GENERAL METHODS 1B1A, 2A1, 2B

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

-1-- -2-- -3-- -4-- -5-- -6-- -7-- -8-- -9-- -10- -11- -12- -13- -14- -15- -16- -17- -18- -19- -20

SAMPLE NO.	DEPTH (CM)	HORIZON	(- - -TOTAL - - -) CLAY LT .002	SILT .002 -.05	SAND .05 -2	FINE LT .0002	(- -CLAY- -) CO3 LT .002	(- -SILT- -) FINE .002 -.02	COARSE .02 -.05	VF .05 -.10	(- - - - -SAND- - - - -) F .10 -.25	M .25 -.50	C .5 -1	VC 1 -2	(-COARSE FRACTIONS(MM)-) 2 -5	5 -20	20 -75	.1- 75	(>2MM) WT PCT OF WHOLE SOIL
			<- - - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				
90P1129S	0- 13	AP1	42.2	40.4	17.4	33.5		23.4	17.0	4.8	4.3	4.0	2.6	1.7	1	--	--	13	1
90P1130S	13- 32	AP2	42.3	41.1	16.6	33.7		22.3	18.8	4.6	4.3	4.0	2.5	1.2	--	--	--	12	-
90P1131S	32- 63	BT1	53.3	33.6	13.1	44.6		21.6	12.0	3.9	3.6	2.8	1.8	1.0	2	--	--	11	2
90P1132S	63- 90	BT2	52.1	36.0	11.9	45.1		18.0	18.0	4.2	2.9	2.7	1.6	0.5	TR	--	--	8	TR
90P1133S	90-120	BT3	52.1	35.7	12.2	42.0		21.1	14.6	4.0	3.1	2.4	1.6	1.1	TR	--	--	8	TR
90P1134S	120-150	BT4	49.7	38.4	11.9	24.6	0.3	22.5	15.9	3.8	2.8	2.3	1.8	1.2	TR	1	--	9	1
90P1135S	150-190	BC	48.0	39.7	12.3	19.7	3.8	24.3	15.4	3.9	2.5	2.3	1.8	1.8	--	--	--	8	-

DEPTH (CM)	ORGN C 6A1c PCT	TOTAL N 6B3a <2MM	EXTR P 6S3 PPM	EXTR S 6R3a	TOTAL (- - DITH-CIT - -) EXTRACTABLE FE 6C2b	AL 6G7a	MN 6D2a	CEC 8D1	(RATIO/CLAY) 15 BAR 8D1	(ATTERBERG) - LIMITS - LL 4F1 PCT <0.4MM	PI 4F	(- BULK DENSITY -) FIELD MOIST 4A3a	1/3 BAR 4A1d	OVEN DRY 4A1h	WHOLE SOIL 4D1	COLE	(- - -WATER CONTENT - -) FIELD MOIST 4B4	1/10 BAR 4B1c	1/3 BAR 4B1c	15 BAR 4B2a	WRD WHOLE SOIL 4C1
	PCT	<2MM	PPM	<- PERCENT OF <2MM -->								<- - G/CC - - ->				CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 13	1.45	0.141						0.77	0.46			1.23	1.50	0.068					23.8	19.6	0.05
13- 32	1.25	0.120						0.76	0.44			1.43	1.86	0.092					24.8	18.5	0.09
32- 63	0.64	0.069						0.67	0.43			1.34	1.81	0.104					32.1	22.7	0.12
63- 90	0.58							0.75	0.46			1.30	1.80	0.114					32.9	23.9	0.12
90-120	0.54							0.70	0.44			1.38	1.86	0.104					30.4	22.9	0.10
120-150	0.41							0.66	0.43			1.33	1.75	0.095					30.1	21.6	0.11
150-190	0.33							0.61	0.40			1.37	1.73	0.081					28.6	19.1	0.13

AVERAGES, DEPTH 32- 82: PCT CLAY 53 PCT .1-75MM 10

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***

S89FN-245-011 PRINT DATE 08/20/02
SAMPLED AS : METKOVETCH ;
USDA-NRCS-NSSC-SOIL SURVEY LABORATORY ; PEDON 90P 167, SAMPLE 90P 1129- 1135

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20
	(- NH4OAC EXTRACTABLE BASES -)					ACID-	EXTR	(- - - -CEC - - -)			AL	-BASE SAT-		CO3 AS	RES.			COND.(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY	AL	SUM	NH4-	BASES	SAT	SUM	NH4	CACO3	OHMS			MMHOS	KCL	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC	+ AL			OAC	<2MM	/CM			/CM	IN	.01M	
(CM)	6N2e	6O2d	6P2b	6Q2b		6H5a	6G9b	5A3a	5A8b	5A3b	5G1	5C3	5C1	6E1g	8E1			8I	8C1g	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->										<- - - - -PCT - - - ->									1:2	1:1
0- 13	24.0	7.3	--	1.1	32.4	8.7		41.1	32.4			79	100						4.8	5.6	6.0
13- 32	23.6	7.3	--	0.7	31.6	8.1		39.7	32.1			80	98						4.7	5.5	6.0
32- 63	27.3	10.1	TR	0.8	38.2	6.9		45.1	35.8			85	100	--					5.2	6.3	6.9
63- 90	28.0	12.4	TR	0.9	41.3	6.6		47.9	39.1			86	100						5.4	6.2	6.9
90-120	27.7	12.9	0.4	0.8	41.8	4.5		46.3	36.6			90	100						5.8	6.7	7.4
120-150		12.8	0.4	0.7					32.8			100	100	2					7.0	7.5	8.3
150-190		12.8	0.4	0.7					29.2			100	100	11					7.2	7.7	8.2

ANALYSES: S= ALL ON SIEVED <2mm BASIS

S89FN-245-011 PRINT DATE 08/20/02
SAMPLED AS : METKOVETCH ;
USDA-NRCS-NSSC-SOIL SURVEY LABORATORY ; PEDON 90P 167, SAMPLE 90P 1129- 1135

CLAY MINERALOGY (<.002mm)

SAMPLE NUMBER	FRACTION (-1-)	X-RAY 7A2i peak size (-2-)	(-3-)	(-4-)	(-5-)	(-6-)	THERMAL DTA 7A6 Percent (-7-)	(-8-)	THERMAL TGA 7A4b Percent (-9-)	(-10-)	ELEMENTAL 7C3 SiO2 Percent (-11-)	AL2O3 (-12-)	Fe2O3 (-13-)	MgO (-14-)	CaO (-15-)	K2O (-16-)	Na2O (-17-)	(-18-)	EGME RETN 7D2 (-19-)	INTERPRETATION (-20)
90P1129	TCLY	MT 4	MI 3	KK 2	MM 2	QZ 1						20.0	8.4			2.4				
90P1131	TCLY	MT 5	MI 3	KK 3	QZ 1							21.0	8.7			2.4				
90P1132	TCLY	MT 4	MI 3	KK 3	MM 1	QZ 1						22.0	8.7			2.3				
90P1135	TCLY	MT 3	MI 2	KK 2	CA 2	CL 1						19.0	8.9			2.1				
90P1135	TCLY	QZ 1																		

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT montmorillon MI mica KK kaolinite MM mont-mica QZ quartz CA calcite
CL chlorite

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

INTERPRETATION (BY HORIZON):

PEDON MINERALOGY
BASED ON SAND/SILT:
BASED ON CLAY:
FAMILY MINERALOGY:
COMMENTS:

*** P R I M A R Y C H A R A C T E R I Z A T I O N D A T A ***
S89FN-245-011 (BULGARIA)

PRINT DATE 08/20/02

SAMPLED AS : METKOVETCH ;

SSL - PROJECT 90P 27, (CP90FN040) BULGARIA
- PEDON 90P 167, SAMPLES 90P 1129- 1135
- GENERAL METHODS 1B1A, 2A1, 2B

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LINCOLN, NEBRASKA 68508-3866

		-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20
		ACID OPT DEN	OXALATE FE	EXTRACTION SI	AL	PHOSPHOUS RET	CIT-ACID	KCL MN	TOTAL C	(- -WATER 0.06 BAR	CONTENT- -)(- - - - WATER DISPERSIBLE - - - -) 1- BAR	2- BAR	15 BAR	<- - PIPETTE - - >< - HYDROMETER - > CLAY	SILT	SAND	CLAY	SILT	SAND	MIN SOIL CONT	AGGRT STABL <5mm
SAMPLE NO.	HZ NO	8J	6C9a	6V2	6G12	6S4	6S5	6D3	6A2d	4B1c	4B1a	4B1a	4B2b	<- - - 3A1c	- - -	-><- - -	SML	- - -	-> 8F1		4G1
		<- P C T o f < 2 m m -><- P P M ->< - - - - - - - - - - - P E R C E N T o f < 2 m m - - - - - - - - ><20mm>< PCT>																			
90P1129	1								1.44												41
90P1130	2								1.25												48
90P1131	3								0.67												
90P1132	4								0.72												
90P1133	5								0.61												
90P1134	6								0.60												
90P1135	7								1.89												