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IWMI International Water Management Institute

SOIL-RECLAMATION PASSPORT

of Demonstration field

Republic	**Uzbekistan**
Province	Fergana
Region	Ahunbabaev
Farm	«Azizbek»

Field # 5

Farmer	**Ulmasov Mamadale**
Technician	**Ahmedov Kurbanale**
Agronomist	**Umarov Habibullo**

TASHKENT-2003

Basic field characteristics

Year	Gross area , ha	Unused area, ha	Irrigation system, roads, ha	Constructions, brigade, camp, ha	Irrigated area, ha	Long-term plantings, ha
2001						
2002						
2003	11.6	0.0	0.1	1.0	10.5	0.0
2004						
2005						
2006						
2007						
2008						
2009						
2010						

Term of lease: from 2000
Term of irrigation : from 1968

Sowing structure on field

Year	Basic crop, ha			Secondary crop, ha			Total, ha
	Cotton	**Wheat**	**Other**	**Vegetable**	**Maize**	**Other**	
2001	0	10.5	0	0	0	0	10.5
2002	10	0	0.5	0	0	0	10.5
2003	0	10.5	0	0	0	0	10.5
2004							
2005							
2006							
2007							
2008							
2009							
2010							

Field production levels

Crops	Year	Production levels (c/ha)			
		PC	APC	RC	FC
	2001				
	2002				
Winter wheat	**2003**	82,8	63.1	10.5	
	2004				
	2005				
	2006				
	2007				
	2008				
	2009				
	2010				

PC - potencial crop
APS - actually-possible level of crop
RC - real crop
FC - Practically received crop in field

Basic characteristics of soil (Plough-layer / sub-plough-layer)

Year	Conductance EC 1:1*3.5, dS/m	Volumetric weight, g/cub.cm	Humus content, %	Content K_2O, mg/kg	Content P_2O_5, mg/kg	Content $N\text{-}NH_4$, mg/kg	Content of phys. clay, %
2001							
2002							
2003	5,22	1,30	1,41	169	13,6	43,5	2,1
	5,25	1,30	1,16	170	13,7	45,1	2,8
2004							
2005							
2006							
2007							
2008							
2009							
2010							

CLIMATIC CHARACTERISTIC

1. Average monthly data(Meteostation ”Fergana”)

Month	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Tempirature ,^{o}C	0	2	8	16	20	26	28	25	21	14	6	2
Max. Temperature, ^{o}C	4,10	6,18	12,00	19,81	25,16	31,03	33,45	31,30	27,39	20,08	10,36	6,09
Min. temperature,^{o}C	-2,34	-0,60	5,21	11,47	15,23	20,36	22,16	19,79	15,52	9,94	2,76	-0,21
Precipitation, mm	12,29	19,64	25,30	28,16	21,99	11,55	3,41	2,16	4,22	8,60	12,10	13,43
Humudity, %	76,67	73,67	70,33	62,33	54,00	47,33	45,33	47,33	53,33	62,67	77,00	80,00
Wind speed, m/s	0,97	1,20	1,33	1,47	1,50	1,50	1,30	1,23	1,03	0,97	0,87	0,80
Daylight per day, hour	3,7	4,9	4,3	6,3	8,8	9,7	11,2	10,1	9,6	7,8	4,5	3,3
Evaporativity, mm			1,60	2,92	4,65	6,45	7,05	6,26	4,14	2,31	1,35	

2.Frost period Early **5.10**
Middle **1.11**

3. Wheat sowing date **10.10 – 30.10**

4. Recommended soil temperature under cotton sowing **12 – 15 ^{o}C**

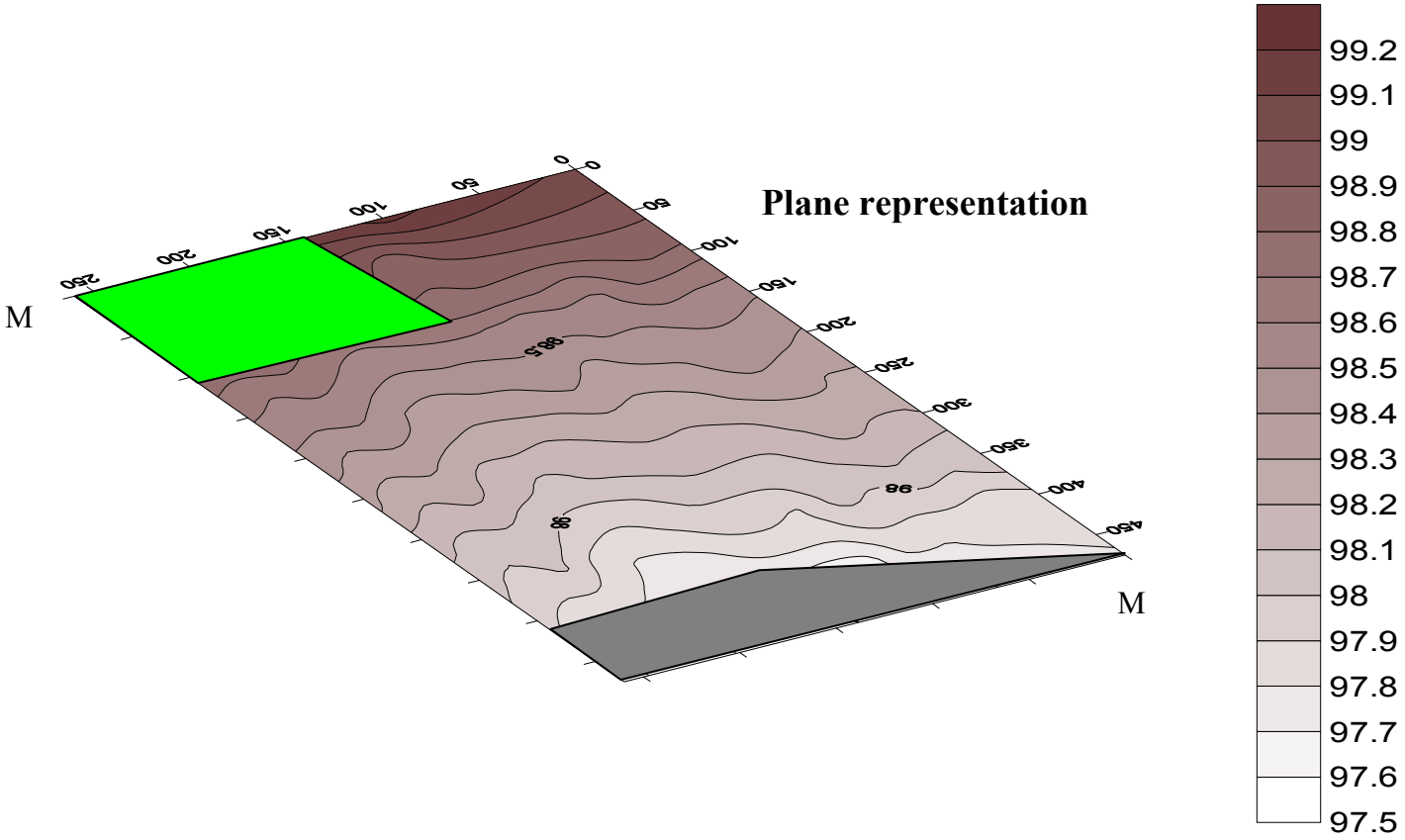
5. Averege multiyear date of temperature occurrence for cotton sowing **23.3 – 13.4**

6. Averege multiyear sums of effective temperatures under cotton sowing in time

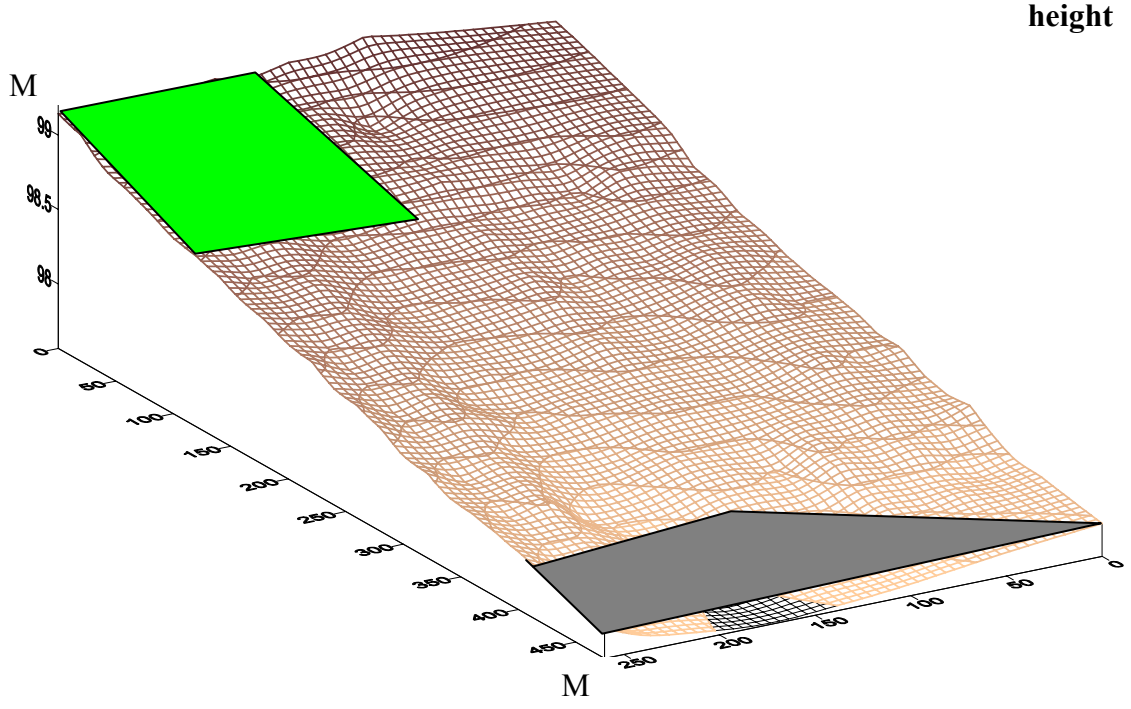
5.4	**2473 ^{o}C**
15.4	**2446 ^{o}C**
25.4	**2396 ^{o}C**
1.5	**2321 ^{o}C**
5.5	**2224 ^{o}C**

Pilot field topography. 2001.

 # 5



Spatial representation



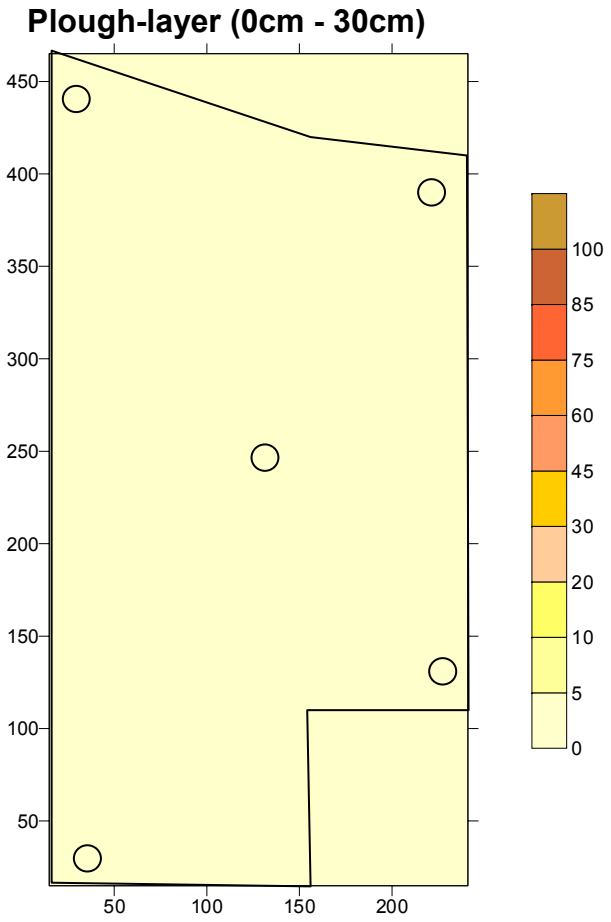
Water – physical soil properties, 2001

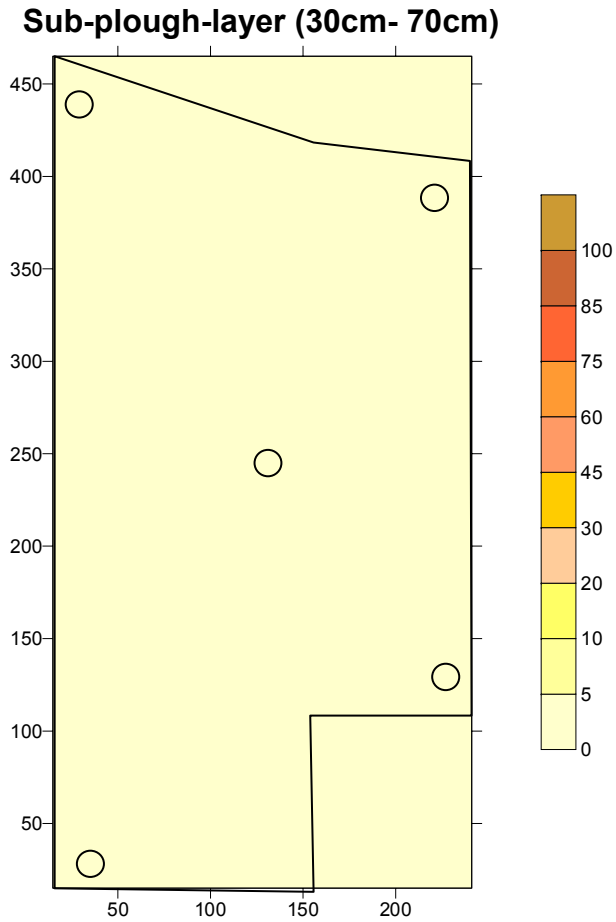
Genetic horizons (cm)	Mechanical composition (Kachinsky)	Bulk density, g/cm3	P, %	FC, %	WP, (mm)	AWC, (mm)	Gypsum , %
0 – 25 cm	Light loam	1,24	52	22,41	10,93	115	3,13
25 – 45 cm	Light loam	1,47	42	26,20	13,33	129	12,24
45 - 66 cm	Light loam	1,43	47	29,65	16,21	134	41,01
66 – 83 cm	Sandy loam	1,51	42	24,12	10,84	133	37,16
83 – 94 cm	Sand	1,3	49	31,82	18,71	131	63,98
94– 120 cm	Light loam	1,58	37	35,05	21,38	137	43,26

P-porosity (of volume) , %
FC-field capacity,%

WP-wilting point, %
AWC- available water capacity (mm) per 1 m layer

Mechanical soil structure. 2003 .

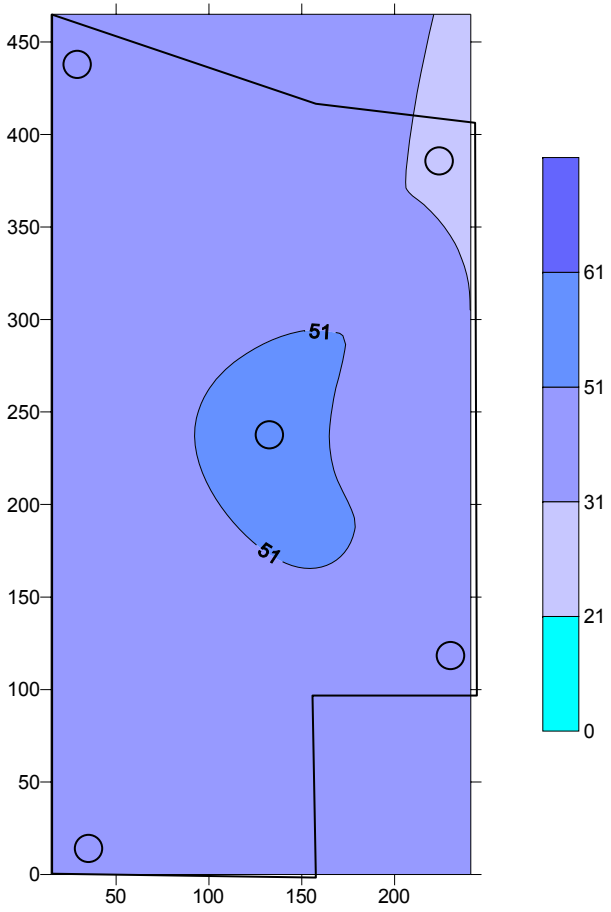




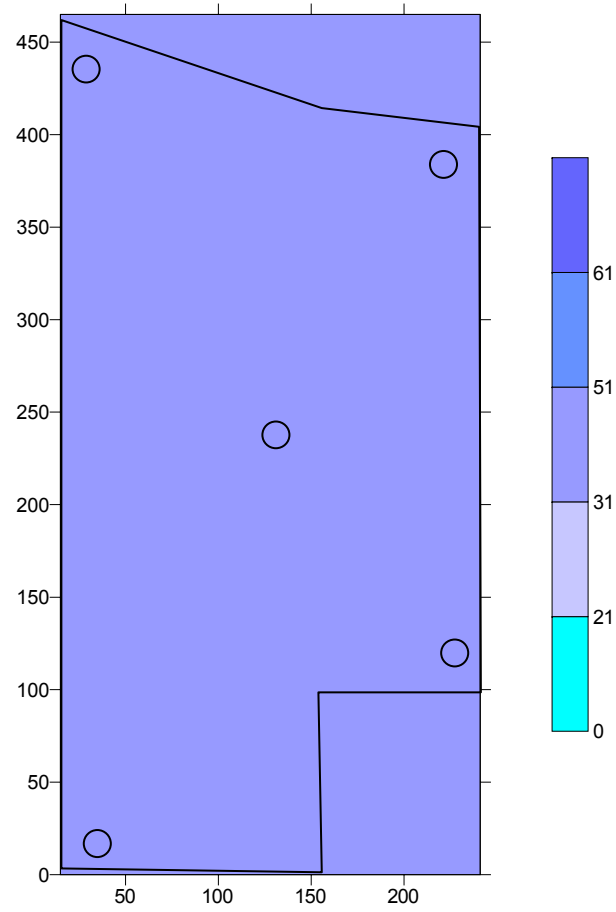
COLOR	Soil structure	Content of phys. clay %
	Loose sand	**0 - 5**
	Binder sand	**5 – 10**
	Clay	**10 – 20**

Nitrogen content ($N\text{-}NH_4$, мg/kg)in soil. 2003.

Plough-layer (0cm- 30cm)



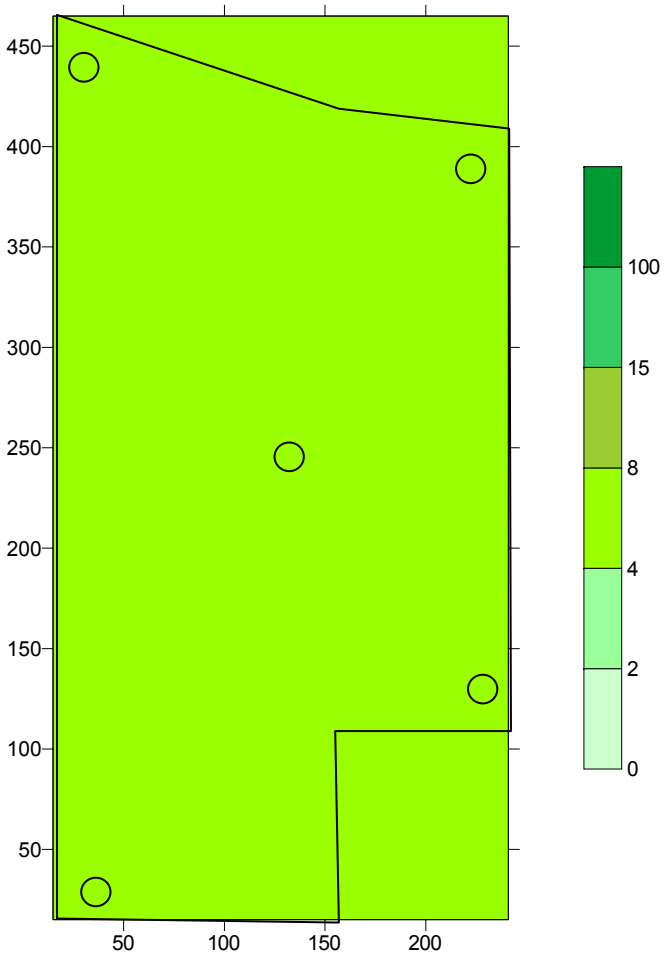
Sub-plough-layer (30cm - 70cm)



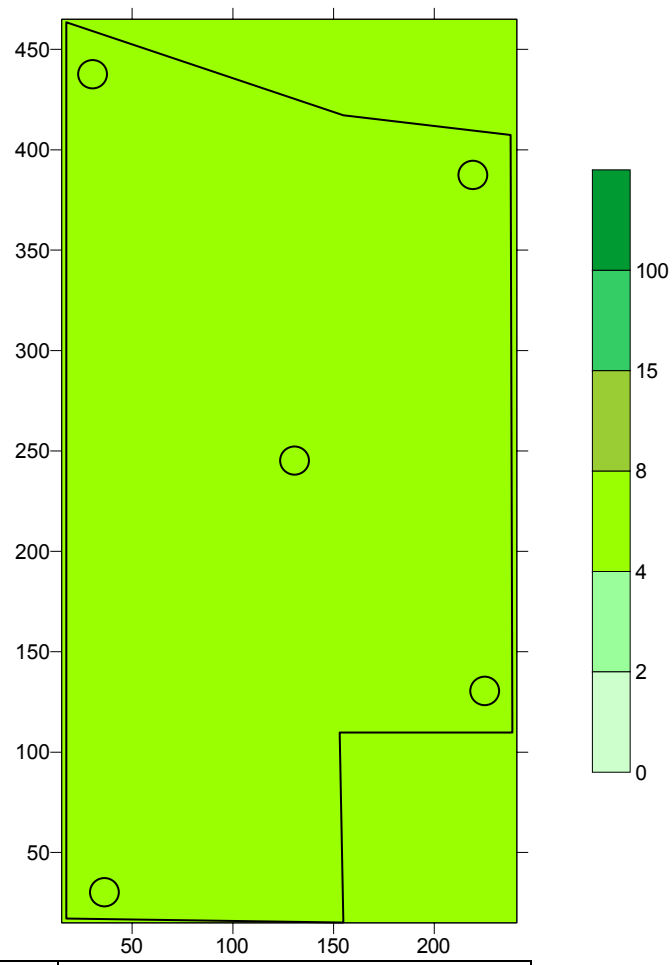
COLOR	Provision	Content mg/kg	Recommended N fertilizer application norm
	Very low	< 20	270 kg/ha (active)
	Low	20 – 30	230 kg/ha (active)
	Normal	30 – 50	200 kg/ha (active)
	Heightened	50 – 60	160 kg/ha (active)
	High	> 60	130 kg/ha (active)

Experimental filed soil salinity. (EC 1:1). 2003 .

Soil horizon (0cm – 30cm)



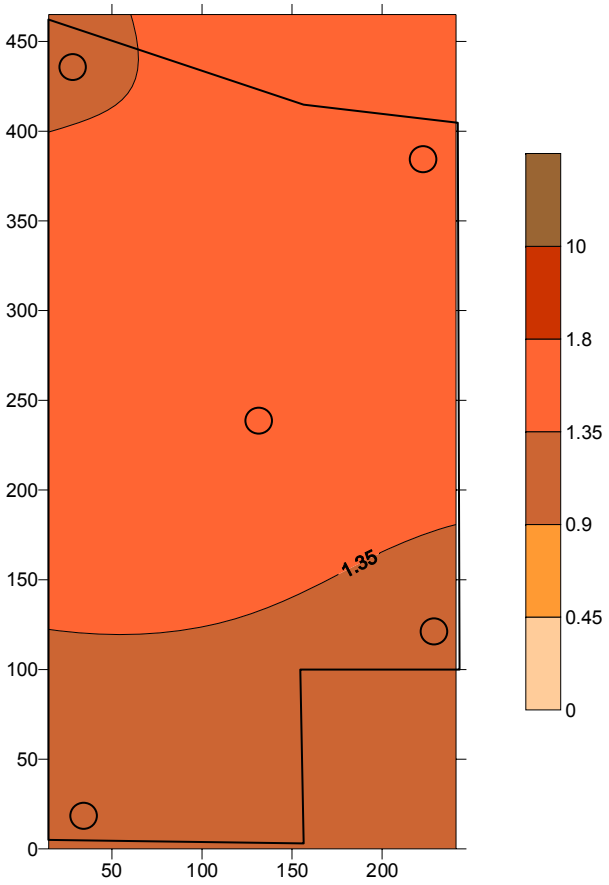
Subsoil horizon (30cm – 70cm)



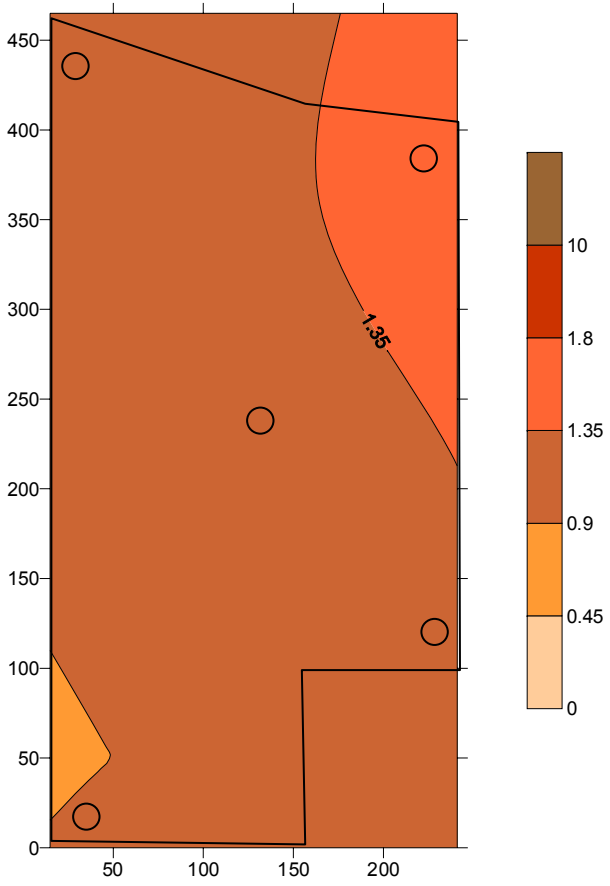
COLOR	Degree	El. Conductivity, EC 1:1x3,5 dS/m	Recommended wash norm
	Non-soline	0 – 2	0.0
	Slightly saline	2 – 4	1500 – 2000 m3/ha
	Medium saline	4 – 8	3000 – 4000 m3/ha
	Strongly Saline	8 – 15	5000 – 7000 m3/ha
	Very strong saline	> 15	> 8000 m3/ha

Humus content (%) in soil. 2003 .

Soil horizon (0 – 30 cm)



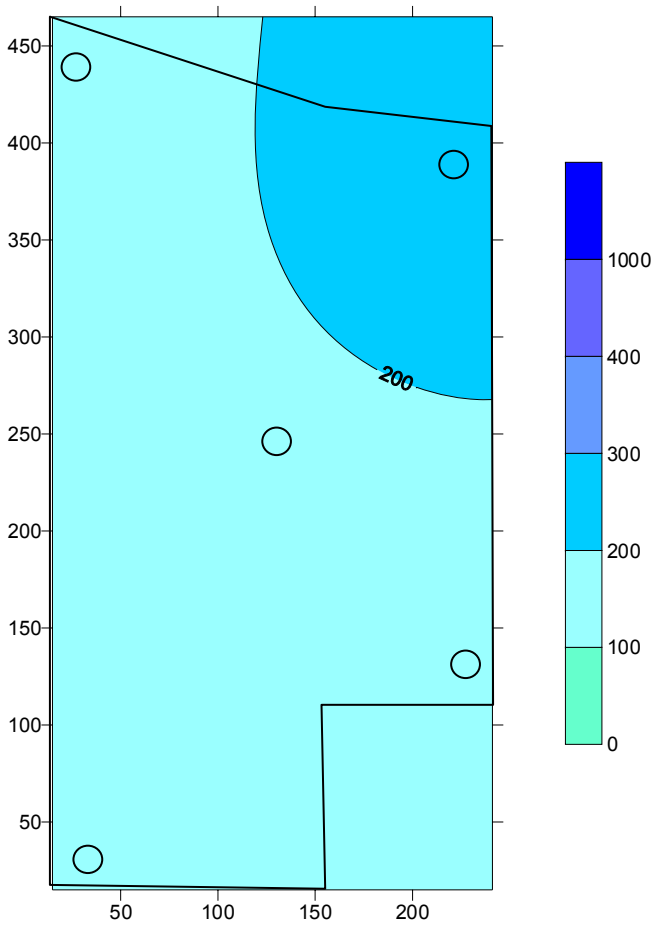
Subsoil Horizon (30 – 70 cm)



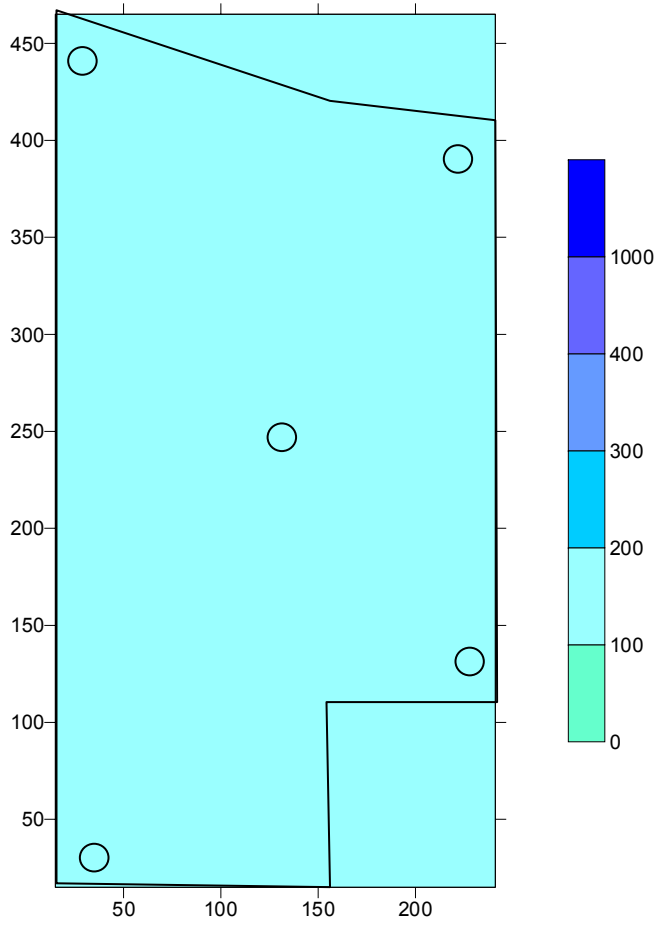
COLOR	Provision	Humus content %	Recommended manure application norm
	Very low	0 – 0,45	25 t/ha
	Low	0,45 – 0,9	20 t/ha
	Medium	0,91 – 1,35	15 t/ha
	High	1,36 – 1,8	5 t/ha
	Very high	> 1.8	0.0

Potassium content (K_2O, mg/kg) in soil. 2003 .

Soil horizon(0 – 30 cm)



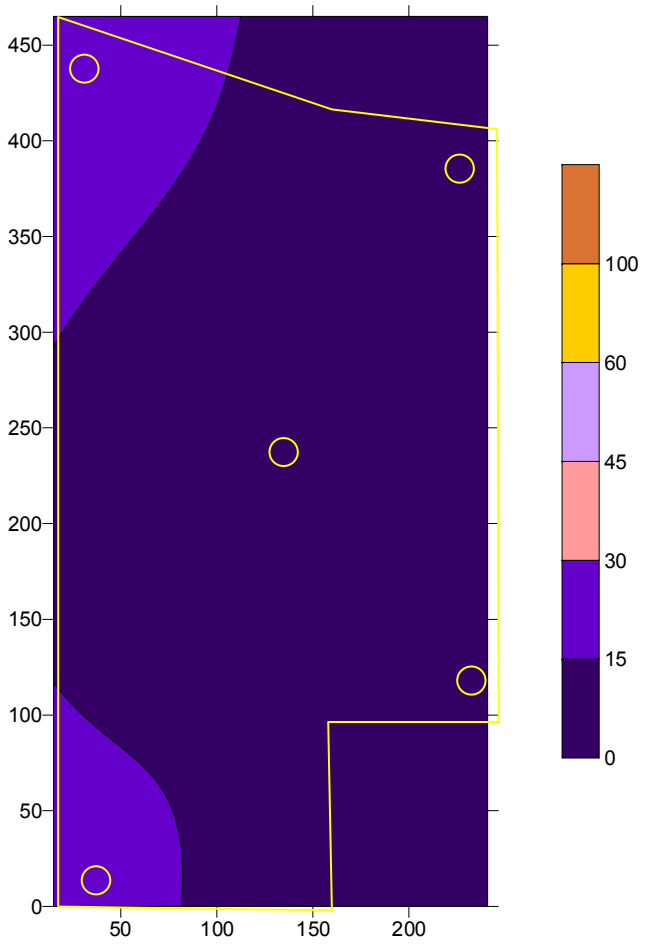
Subsoil horizon (30 – 70 cm)



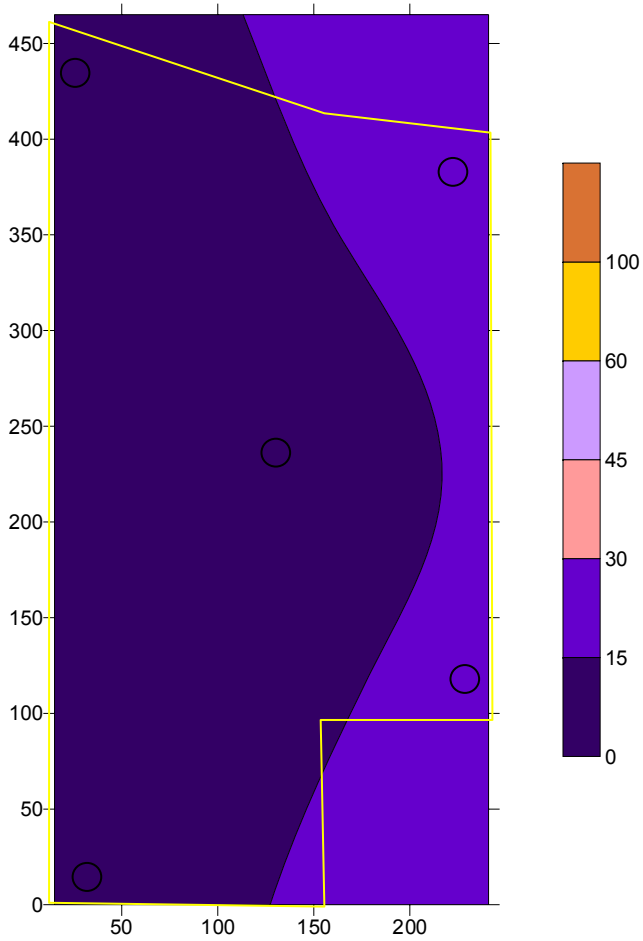
COLOR	PROVISION	CONTENT, mg/kg	Recommended K fertilizer application norm
	Very low	< 100	100 kg/ha (active)
	Low	101 – 200	70 kg/ha (active)
	Medium	201 – 300	50 kg/ha (active)
	Good	301 – 400	25 kg/ha (active)
	Very good	> 400	15 kg/ha (active)

Phosphorus content (P_2O_5, mg/kg) in soil. 2003 .

Soil horizon (0 – 30 cm)

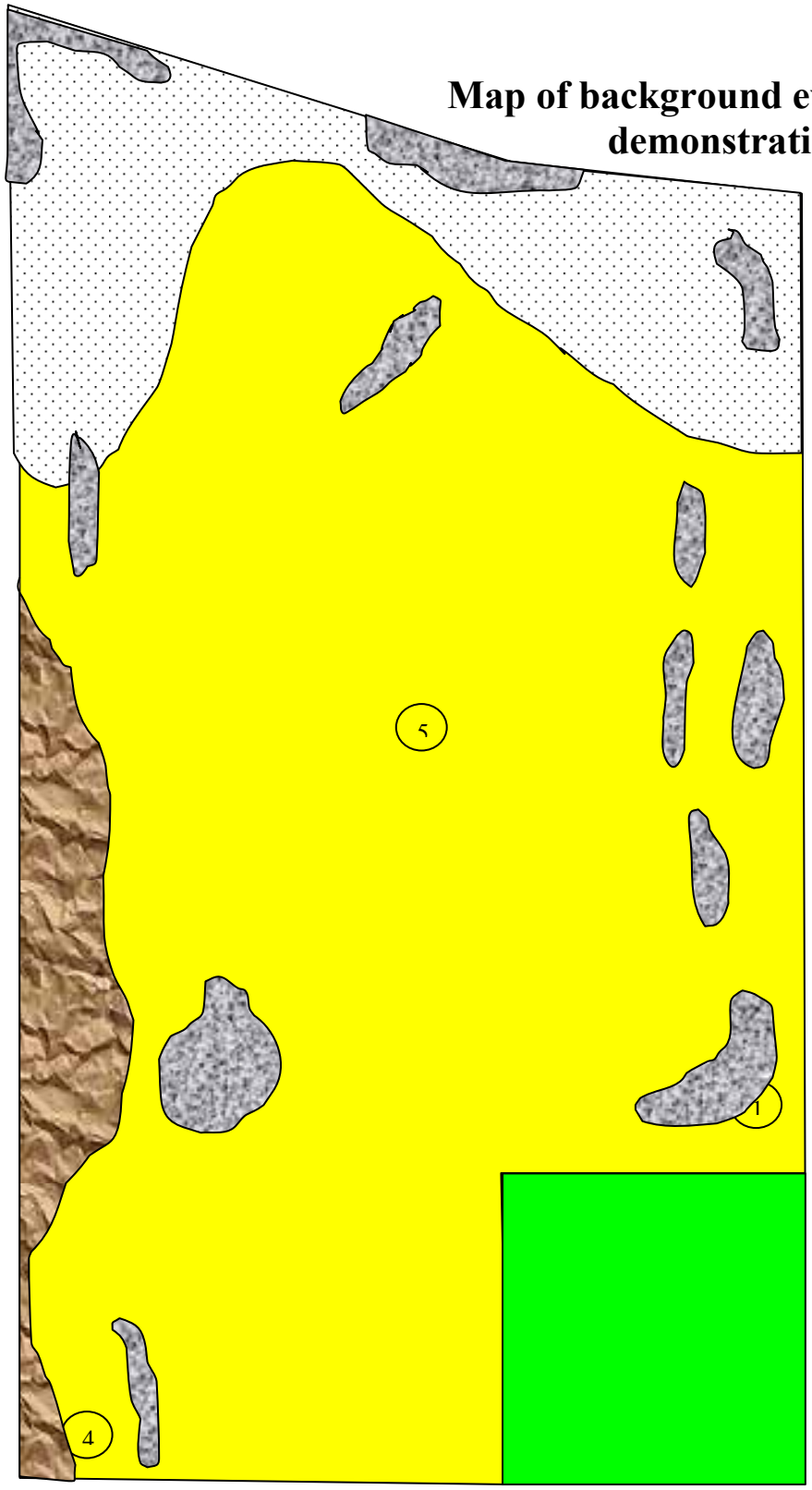


Subsoil horizon (30 – 70 cm)



COLOR	Provision	Content mg/kg	Recommended P fertilizer application norm
	Very low	< 15	210 kg/ha (active)
	Low	15 – 30	180 kg/ha (active)
	Medium	31 – 45	150 kg/ha (active)
	Good	46 – 60	120 kg/ha (active)
	Very good	> 60	90 kg/ha (active)

Map of background evenness of demonstration field # 5



Explication	Background non-uniformity reason	Area, м2	Thinning, %	Depression state, %
	Poor soil leveling and cultivation	660	16	20
	Damage from vermin and diseases	9710	12	17
	Gypsum	20370	10	16

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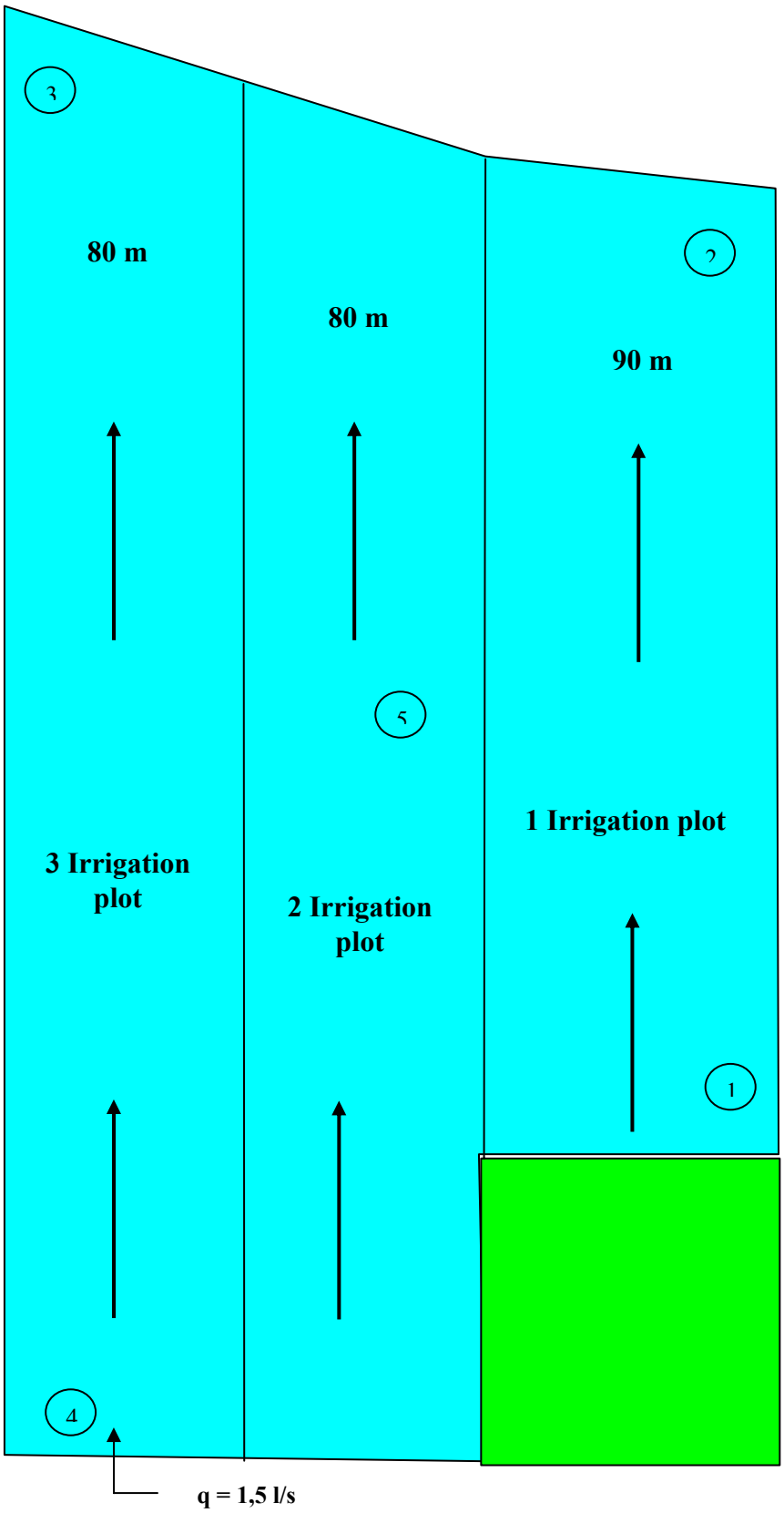
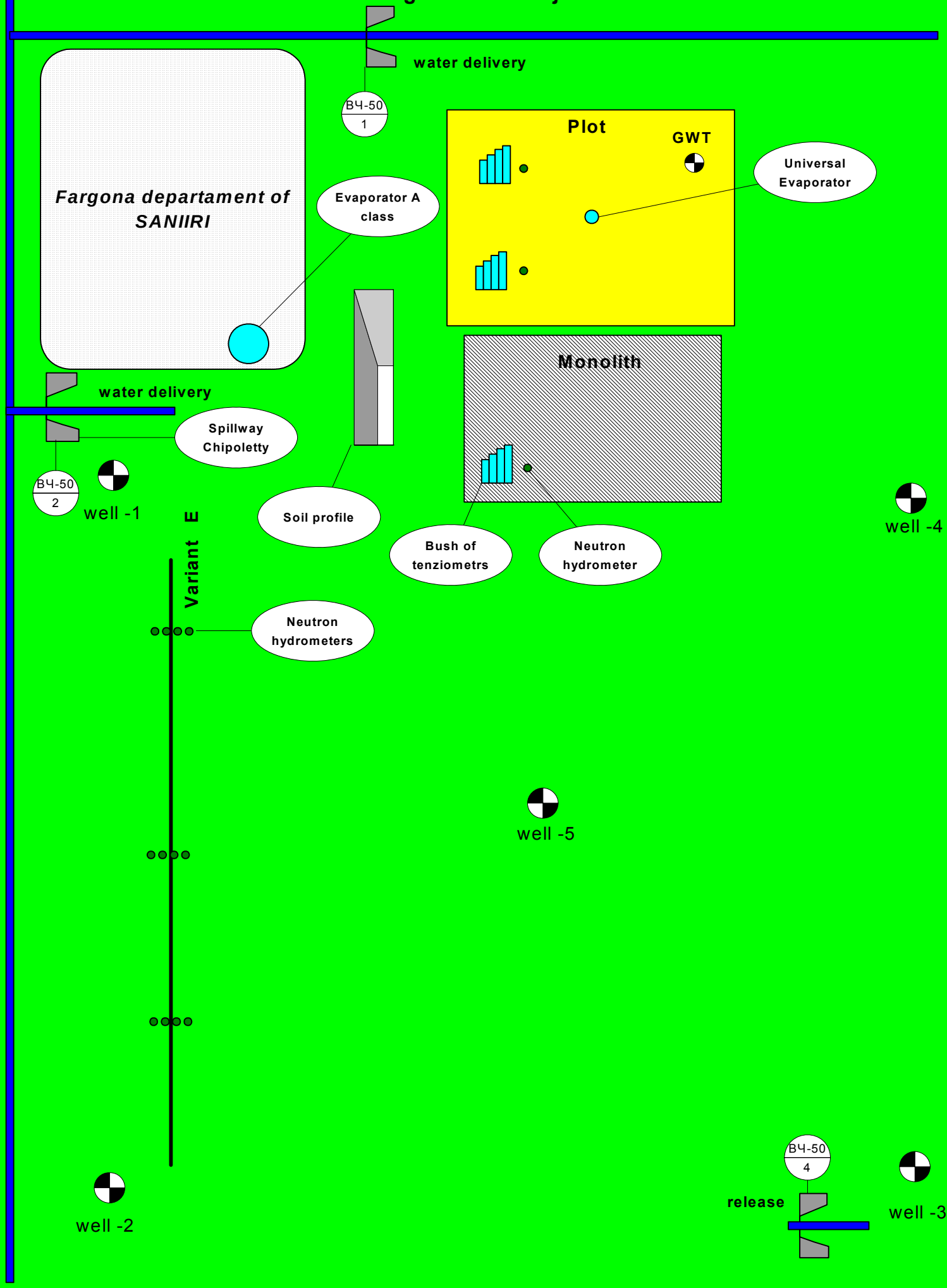
Irrigation scheme



The circuit of an arrangement of objects and devices of a field 5



INFORMATION Of PLOT DOCKAGE

Year	Crop	Name of weeds	Average quantity of weeds(p./r.m.)	Crop losses(%)	Fight method
2001					
2002					
2003	Winter wheat	Chenopodium album L	1	2	By hand
		Sorghum helepense Pers	3		By hand
		Cynadon dactilon L	2		By hand
2004					
2005					
2006					
2007					
2008					
2009					
2010					

INNFORMATION OF HERICIDES USE

Year	Name of preparation	Terms of treatment	Dose of insertion, kg/ha
2001			
2002			
2003	Out of use		
2004			
2005			
2006			
2007			
2008			
2009			
2010			

INFORMATION OF DISEASES AND PESTS DISTRIBUTION

Year	Name of disease, pest	Fight method	Crop losses, (%)
2001			
2002			
2003	Hottentot bug	Granstar	3
2004			
2005			
2006			
2007			
2008			
2009			
2010			

Indicators of agricultural production cost-effectiveness

№/№	Indikators	2001	2002	2003	2004	2005	2006	2007	2008
		Wheat	Cotton	Wheat					
1	**Yield Capacity (t/ha)**	4.0	3.7						
2	**Product price ($/t)**	60	139						
3	**Total product cost ($/ha)**	240	514.3						
4	**Mechanised labor ($/ha)**	66.5	77.0						
5	**Manual labor ($/ha)**	22.5	71.7						
6	**Variabl cost ($/ha)**	175.6	236.3						
7	**Gross Profit ($/ha)**	64.4	278.0						
8	**Permanent costs ($/ha)**	12.3	17.8						
9	**Net Profit ($/ha)**	52.1	260.2						

Data on agricultural crop yield capacity

№\№	Basic information	2001	2002	2003	2004	2005	2006	2007	2008
	Crop	**Wheat**	**Cotton**	**Wheat**					
1	**Planned crop capacity (t/ha)**	3.6	3.5						
2	**Factual crop capacity (t/ha)**	4.0	3.7						
3	**Sowing date**	09.10.2000	13.04.2002						
4	**Thickness of plants stand - 50 days after shoots appearance (thous./ha)**	-	130						
5	**Thickness of sowing – 100 days after shoots appearance (thous./ha)**	-	120						
6	**1 Harvest (t/ha)**	3.6	2.0						
7	**2 Harvest (t/ha)**	-	1.3						
	3 Harvest (t/ha)	-	0.4						
	4 Harvest (t/ha)	-	-						
	Total harvest (t/ha)	4.0	3.7						

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