REGISTER OF RESEARCH ON IRRIGATION AND DRAINAGE

QUESTIONNAIRE

A	**Project title:**
Study of winter wheat irrigation regime for typical gray soils of Tashkent oasis	

B	**Topic n^o : 1**	Sub-topic n^o: 2
1)	1	Technical field n^o: 1
2)	Category n^o: 01	

C	**Project location**		
	Country: Republic of Uzbekistan	Area: ha	
Tashkent province, Yangiyul district collective farm “Tinchlik”			

D	**Duration of the project:**	
	Year in which the project was started: 1994	Project completed: 1997 Dates of Expertise: 1995, 1996

E	**Organizations and technical staff involved**	
1	Supervisor/project coordinator: F. Rakhimbayev	%
	Organization: TIIIMSH Address: 39, Kari - Niyazov str. Tashkent telephone: 7 (3712) 357421 fax: E-mail:	Staff resources 70
Other counterparts:	Organizations Surname First name	
1	Abduvahid Urazkeldiyev , TIIMSH	30%
2		%
3		%
4		%
Other collaborators:	man-years	

F	**Funding agencies**	
	Full name or acronym	Percentage of project finance provided
1	Collective farm “Tinchlik”	40%
2	TIIMSH	60%
3		%

G	Summary of research project

1 *Objective and technical fields*:

Development of rational irrigation regime for winter wheat.

Objectives: Definition of efficient application of different irrigation regimes and crop' water-requirements for typical gray soils, providing grain high yield under water saving.

2 *Scientific and technical approaches:*

Study of rational irrigation regime and land productivity increase is based on definition of optimal moisture, number of irritations, total water consumption, irrigation rate and plant growth and development.

3 *Environment characteristics:*

Climate is sharply continental.

Average air temperature is 13 - 14 ^{0}C. Frost-free period duration is 200 -220 days. Sum of effective temperatures is 2293 0C. Precipitation is 240 - 296 mm. Relative air humidity is 45 - 87%.

Geomorphology: river Chirchik terrace.

Relief is corrugated.

Soils: regular loess loam, non-salinizated.

Groundwater level is 5 -10m.

Soils are poor in humus and nutrients. Within arable layer humus content is 1,1 - 1,6%, nitrogen 0,09 - 0,2%; phosphorus 0,14 - 0,2%. Permeability coefficient is 0,8 - 0,35 m/day.

4 *Parameters of Pilot Projects and Technical Solutions:*

Irrigated area is 1ha, land use efficiency is 0,78. Crop pattern: cotton, grain, vegetables, melon, orchard, grape. Water supply is performed from canals Djun and Bozsu. Canal Djun extent is 50 km, capacity is 33 cu.m/sec. Irrigation network is earthen with efficiency 0,68 - 0,73. Experimental site area is 0,5 ha.

5 *Methodology:*

Field investigations of water balance elements within unsaturated zone. Regular observations on soil water-salt regime, water balance elements in connection with irrigation regime. Site was equipped by means of water accounting. Multicriterial analysis was accepted for data processing.

6 *Results:*

Winter wheat cultivation on gray soils with deep groundwater level changes soil properties. Soil permeability was reduced to the end of growing season and for 3 years it was reduced from 0,45 to 0,31 mm/min. Soil compaction permanently occurred within arable layer (0 -30 cm), where volume mass increased on 0,07 - 0,10 g/cu.m. Lower limit for moisture content before irrigation is 70% within the period from shoots appearance to the beginning of ripening; within germination period it can be reduced to 60%, that provides grain yield of 6,2 - 5,3 t/ha or 1,0t/ha more than in control version. Biggest water specific expense per 1 t product was within control field (840 cu.m) which is 210 cu.m more to compare with optimal one. Best conditions for plants growth were found under moisture content 70 - 70 - 60%. Number of irrigations should be 3 under scheme 2 -1 -0 by depth 660 - 980 cu.m/ha , irrigation after sowing by depth 1100 cu.m/ha and irrigation rate 3700 cu.m./ha. Experimental field water consumption was 5500 cu.m/ha including irrigation water 3550 cu.m/ha, soil water growth 590 cu.m/ha and rainfall 2540 cu.m/ha. After 3 years of winter wheat calculation humus, total nitrogen and phosphorus content within arable layer (0 - 30cm) was reduced from 1,086 to 1,035, from 0,097 to 0,090 and from 0,19 to 0,17% respectively.

H	Suggested key-words		
1	Irrigation regime	4	Moisture before irrigation
2	Irrigation depth	5	Water consumption
3	Yield	6	

I	Most recent publications (maximum 3)			
1	Author(s): A. Urazkeldiyev			
	Title: Winter wheat irrigation regime study on typical gray soils of Tashkent oasis.			
	Publication details:			
	Year of publication:	free access [•]	restricted [ ]	confidential [ ]
2	Author(s):			
	Title:			
	Publication details:			
	Year of publication:	free access [ ]	restricted [ ]	confidential [ ]
3	Author(s):			
	Title:			
	Publication details:			
	Year of publication:	free access [ ]	restricted [ ]	confidential [ ]