

7. Practical demonstration of WUFMAS recommendations on irrigation productivity increase results

During growing season 1999 within WUFMAS project on demonstration fields of the region (table 6) practical realization of developed recommendations on irrigation water productivity increase was started.

Preliminary technical-economic evaluation has been done for 7 various scenarios and one scenario foreseeing water expenses reduction with simultaneous crop yield increase has been selected. Demonstration objectives were as follows:

- Demonstration of water conservation practical achievability and economic expediency in specific current conditions of production.
- Drawing attention of water users to the fact that water is only one from factors of agricultural production and its expenses should be oriented at real level of yield provided by set of factors.

Special attention should be paid to pre-sowing soil preparation and during growing season – to irrigation technique, e.g. optimization of irrigation norm elements, discharge to furrow and furrow length for given slope gradient and soil permeability combination.

Additionally, activity on plant protection should be carried out properly. Irrigation terms and norms were established differentially depending on plant development, weather elements changes and ground water depth defining its contribution to crop water consumption.

Control fields were located in similar soil-reclamation conditions but all operations were performed in traditional manner.

Comparison of results obtained from demonstration and control fields (Table 6) (in ex-creted farms ground water did not participate in crop water consumption, in rest of farms its share was from 20% (18Turk and 35Uz) to 40% (3Kaz and 34Uz) confirms correctness and applicability of recommendations without big investments at expense of production factors management.

On 7 demonstration cotton fields yield grew compared with control one by 86.5%, water expenses per production unit reduced by 51.7% and water unit use productivity increased by 2.5 times.

On each demonstration plot with assistance of WUFMAS specialists workshops for farm employees and heads of water and agricultural organizations were organized.

Thus, practical demonstration of water conservation specific results is prototype of future extension services, which establishing is planned in further programs.

Table 6 | Irrigation water expenses and yield (WUFMAS-99)

Farm code	Yield				Water expenses per area unit		Water expenses per yield unit			
	Field type		Differ-ence	Yield growth	Field type		Field type		Differ-ence	Field type
	Demonstration	Control			Demonstration	Control	Demonstration	Control		
	(t/ha)	(t/ha)	(t/ha)	(%)	(th.m ³ /ha)	(th.m ³ /ha)	(th.m ³ /ha)	(th.m ³ /ha)	(th.m ³ /t)	(%)
3 Kaz	2.92	1.38	1.54	111.6	3.56	2.99	1.22	2.17	0.95	43.8
9 Kirg	2.48	2.21	0.27	12.2	5.98	6.09	2.41	2.75	0.34	12.4
14 Taj	3.23	1.87	1.36	72.7	19.93	26.15	6.17	13.98	7.81	55.9
18 Tur	3.39	1.07	2.32	216.8	8.05	7.23	2.37	6.76	4.39	64.9
22 Uz	4.41	2.28	2.13	93.4	8.12	13.42	1.84	5.89	4.05	68.7
34 Uz	4.43	2.73	1.70	62.3	3.35	8.03	0.76	2.94	2.18	74.3
35 Uz	4.52	3.32	1.20	36.1	6.57	8.36	1.45	2.52	1.06	42.3
Average	3.63	2.12	1.50	86.5	8.40	11.22	2.32	5.29	2.97	51.7

Farm code	Production cost		Operation costs		Profit		Water productivity			
	Field type		Field type		Field type		Field type		Difference	Growth (com-pared with control)
	Demonstration	Control	Demonstration	Control	Demonstration	Control	Demonstration	Control		
	(\$/ha)	(\$/ha)	(\$/ha)	(\$/ha)	(\$/ha)	(\$/ha)	(\$/th.m ³)	(\$/th.m ³)	(\$/th.m ³)	(%)
3 Kaz	657	306	384	233	273	73	77	24	52	215
9 Kirg	668	586	580	563	88	23	15	4	11	289
14 Taj	1291	756	517	404	774	352	39	13	25	189
18 Tur	654	203	504	579	150	-376	19	-52	71	136
22 Uz	753	385	594	480	159	-95	20	-7	27	377
34 Uz	1495	869	996	671	499	198	149	25	124	503
35 Uz	1036	763	229	180	807	583	123	70	53	76
Average	936	553	543	444	393	108	63	11	52	255