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IMPROVEMENT OF THE METHOD OF SUBSTANTIATION OF THE REGIME OF IRRIGATION OF WINTER WHEAT FOR YEARS WITH DIFFERENT SECURITY BY METEOROLOGICAL CONDITIONS

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Abstract: *To study the variability of the irrigation regime of winter wheat, which undergoes significant fluctuations from year to year, and in the annual section by month. The substantiation technique has been improved taking into account the variability of the irrigation regime of winter wheat. The article presents the results of studies of the variability of moisture deficit and irrigation regimes of winter wheat on the irrigated lands of the DJizzakh steppe of Uzbekistan. Studies have shown that the irrigation standards of winter wheat for the year 25% of the supply is almost 2 times greater than for the year of 75%.*

Key Words: *variability, distribution by month, probability, water balances, irrigation, wheat.*

1. INTRODUCTION:

In the world today, about 12.3% of the world 's sown areas are irrigated, mainly all food products are cultivated on these areas for the needs of mankind. The protection of these areas from erosion for many countries located in regions with a dry climate is an urgent problem. Of particular importance is the rational use of water for irrigation of agricultural plants, in conditions of its shortage. Irrigation of winter wheat is a relatively new trend in Uzbekistan is, to ensure grain self-sufficiency after the acquisition of sovereignty. The non-growing season in the Sirdarya region is characterized by great variability in weather conditions. The article provides an improved new methodology for substantiating the regime of irrigation of winter wheat with an intra-annual distribution by months of a given supply.

2. LITERATURE REVIEW:

P. Olevia experiences and P. Olevia practice was based on the methodological recommendations, adopted at the Research Institute of breeding, seed production and RGM of cotton cultivation technology " Methods of agrochemical, agro and microbiological studies in irrigated cotton areas " (PSUEAITI 1963 city of), " The technique of field experiments with cotton" (PSUEAITI, 2007)

3. MATERIALS AND METHODS:

In the territory under consideration, observational data from the Dustlik weather station in the DJizzakh steppe are used. Using the FAO methodology adapted to local conditions, irrigation and irrigation norms were calculated taking into account their variability. Probability theory methods are used.

4. RESULTS AND DISCUSSION:

The substantiation technique has been improved taking into account the variability of the irrigation regime of winter wheat. The article presents the results of studies of the variability of moisture deficit and irrigation regimes of winter wheat on the irrigated lands of the DJizzakh steppe of Uzbekistan for years with different levels of moisture deficiency. For this, the determination of the intra-vegetative distribution (by months) of meteorological factors of a given probability of exceeding was made.

In as the main parameter that characterizes the variability from weather x conditions the data during the growing season of winter wheat can assume moisture deficit evaporability and minus sums and rainfall during the growing season. For this purpose - a technique developed V.I.Moklyakom to study the variability of river runoff and calculations [1] . We calculated the distribution intraseasonal deficit water balance of thirty meteorological data meteorological station " Dustlik " Djizzak area by two methods of calculation - the procedure Andreyanova V. G-seasons layout method [2] and V.I.Moklyaka (compiled computer program medium «EXCEL») Which showed very high convergence. Further calculations determine th tsya intraseasonal amount during the growing period, which is compared with the original data and stored in table 1 year - analogue with security 25% 50% 75% Table 2. Having a year - analogue, with the necessary weather data using the FAO methodology adapted by us to local conditions,

the regime of irrigation of winter wheat is calculated [3,4]. At the end of October, pre-sowing irrigation is planned - 715 m 3 / ha.

Table 1 - Average monthly water demand (evaporation the moisture and winter wheat to the atmosphere minus the amount of rainfall, mm) of the meteorological station " Dustlik " Djizzak area

Years			Months								
			X	Xi	Xii	I	II	III	IV	V	Total
one			2	3	four	five	6	7	eight	9	ten
one	**1983**	**1984**	73.27	26.77	-18.57	-13.90	-41.06	-42.11	78.34	160,43	**223.17**
2	**1 984**	**1985**	55.16	-30.92	-26.14	-36.30	-0.30	-5.12	61.30	157.94	**175.62**
3	**1985**	**1986**	50.72	30.66	-14.97	-2.04	13.66	23.14	103.86	179.48	**384.51**
four	**1986**	**1987**	32.94	14.26	-20.08	20.71	22.15	-85.32	-13.11	166.14	**137.69**
five	**1987**	**1988**	-11.69	18.19	5.48	-11.32	11.31	-9.44	60.82	128.96	**192.31**
6	**1988**	**1989**	46.30	39.63	-17.04	-41.31	-11.89	56.41	94.59	118.25	**284.94**
7	**1989**	**1990**	78.07	1,54	-42.14	-34.04	-14.76	45.12	17.29	136.86	**187.94**
eight	**1990**	**1991**	31,42	27.17	-21.56	-38.67	11.08	-20.70	87.18	100.22	**176.14**
9	**1991**	**1992**	60.41	-12.96	-114.27	-21.19	-6.13	27.79	22.05	69.29	**24,99**
ten	**1992**	**1993**	24.05	35.55	-26.48	3.70	-71.65	-27.96	23.29	67.82	**28.32**
eleven	**1993**	**1994**	40.55	-56.98	-33.54	-21.24	-30.49	29.64	27.91	144.38	**100.23**
12	**1994**	**1995**	63.36	-10.23	-64.61	-19.94	7.24	12.38	97.12	161.96	**247.28**
13	**1995**	**1996**	47.40	45.06	-6.70	9.95	-26.52	-46.07	57.92	166.35	**247.39**
14	**1996**	**1997**	56.30	18.63	27.92	-45.34	2.95	24.92	51.87	102.21	**239.46**
15	**1997**	**1998**	75.59	-8.38	-2.43	-53.34	-61.79	-6.54	17.27	81.45	**41.83**
sixteen	**1998**	**1999**	53.14	14.23	0.04	-27.46	-39.56	-5.72	74.01	126.20	**194.88**
17	**1999**	**2000**	58.97	-39.94	11.87	-18.91	12.95	40.96	99.76	158.65	**324.31**
18	**2000**	**2001**	14.12	-16.26	-24.85	6.74	-9.83	31.67	97.81	164.37	**263.77**
nineteen	**2001**	**2002**	11.00	-5.49	-22.89	-14.77	-64.36	1,61	-6.21	107.23	**6.12**
20	**2002**	**2003**	74.36	25.78	-65.20	17.70	-2.93	-40.35	4.89	99.23	**113.48**
21	**2003**	**2004**	74.76	-27.10	-40.30	-63.75	22.70	-27.90	72.75	129.92	**141.08**
22	**2004**	**2005**	48.55	-63.57	-51.50	-39.84	-4.47	35.08	80.88	109.48	**114.61**
23	**2005**	**2006**	66.83	3.29	15.38	-34.36	7.75	18.88	83.75	160.86	**322.38**
24	**2006**	**2007**	57.66	-8.35	-14.89	-1.65	-5.57	-6.95	19.89	125.90	**166.04**
25	**2007**	**2008**	58.60	16.90	-67.28	-4.19	-7.66	67.77	95.30	147.47	**306.91**
26	**2008**	**2009**	38.89	-12.80	-20.97	-10.49	-47.79	-6.51	-24.11	116.75	**32.97**
27	**2009**	**2010**	76.11	14.79	-21.43	-11.08	-46.48	30,03	68.38	81.92	**192.24**
28	**2010**	**2011**	82.84	12.54	20.95	6.56	-32.22	16.75	98.50	157.48	**363.40**
29th	**2011**	**2012**	43.98	-108.66	-23.65	-5.55	-42.66	-4.62	117.81	143.49	**120.14**
thirty	**2012**	**2016**	59.40	3.47	-20.86	3.28	16,99	-42.50	37.78	162.47	**220.03**
Amount of priority			**1543**	**-53**	**-701**	**-502**	**-439**	**84**	**1709**	**3933**	**1-8**
			6	**four**	**one**	**2**	**3**	**five**	**7**	**eight**	

Table 2 - Estimated Equally Secured Monthly Moisture Deficits, mm

No. p / p	R, %	Months								
		X	Xi	Xii	I	II	III	IV	V	Total
one	2,3	2	3	four	five	6	eleven	12	13	14
2	5,6	56.97	14.26	27.92	-0.42	-4.73	13.41	282.04	-4.96	**384.49**
3	8.9	72.06	21.39	20.95	-17.69	2.65	1.79	247.41	14.82	**363.38**
four	12,2	59.60	18.19	15.38	-14.76	4.85	2.13	166.58	72.34	**324.31**

five	15,5	53.20	22.39	11.87	-17.71	5.25	2.78	149.69	94.92	**322.39**
6	18.8	57.87	11.17	5.48	-12.52	3.68	6.40	143.13	91.70	**306.91**
7	22.0	54.96	8.89	0.04	-16.58	11.82	6.77	42,99	176.03	**284.92**
eight	25.3	57.22	14.11	-2.43	-14.58	5.78	4.05	24.16	175.45	**263.76**
9	28.6	36.40	6.52	-6.70	-10.72	2.95	13.49	33.05	172.39	**247.38**
ten	31.9	46.32	0.12	-14.89	-2.69	-4.53	9.45	9.22	204.29	**247.29**
eleven	35,2	47.40	-1.38	-14.97	-3.14	-5.15	0.37	-49.80	266.15	**239.48**
12	38.5	54.41	-2.51	-17.04	-1.94	-8.96	-3.70	-71.18	274.09	**223.17**
13	41.8	57.19	18.55	-18.57	-4.21	-26.38	-6.79	-71.54	271.79	**220.04**
14	45.1	48.98	16.40	-20.08	-7.34	-23.00	-5.59	-70.36	255.89	**194.90**
15	48,4	45.22	18.53	-20.86	-8.34	-33.54	1,52	-81.50	271.29	**192.32**
sixteen	51.6	45.87	20.22	-20.97	-10.49	-35.52	2.47	-132.56	323.23	**192.25**
17	54.9	42.97	17.50	-21.43	-11.04	-37.77	4.45	-136.88	330.13	**187.93**
18	58.2	47.20	12.98	-21.56	-10.94	-39.35	0.41	-201.80	389.20	**176.14**
nineteen	61.5	53.20	11.31	-22.89	-14.77	-35.87	-2.77	-217.35	404.78	**175.64**
20	64.8	59.81	13.12	-23.65	-23.85	-29.81	-10.96	-242.77	424.16	**166.05**
21	68.1	71.23	-8.56	-24.85	-29.93	-24.20	0.70	-300.02	456.68	**141.05**
22	71,4	45.26	-10.29	-26.14	-29.63	-23.35	0.54	-326.02	507.31	**137.68**
23	74.7	41.65	-12.80	-26.48	-31.87	-20.89	-6.51	-334.78	511.83	**120.15**
24	78.0	39.10	-12.29	-33.54	-26.70	-21.12	-5.12	-406.04	580.31	**114.60**
25	81.3	44.30	-22.23	-40.30	-22.13	-22.84	1,61	-459.39	634.47	**113.49**
26	84.5	49.83	-17.52	-42.14	-29.32	-19.48	-4.16	-467.96	630.96	**100.21**
27	87.8	57.96	-31.52	-51.50	-24.69	-18.24	1.65	-478.36	586.51	**41.81**
28	91.1	54.68	-46.45	-64.61	-19.94	-11.26	15,51	-499.91	604.96	**32.98**
29th	94.4	56.74	-52.52	-65.20	-26.14	-10.68	22.04	-517.19	621.27	**28.32**
thirty	97.7	41.46	-41.81	-67.28	-36.78	-13.51	23.02	-559.94	679.83	**24,99**

The irrigation schedule for winter wheat, when the supply is 25%, for the growing season was calculated based on meteorological data from 1995-1996 at the Dustlik meteorological station in the DJizzakh region is presented in Figure 1.

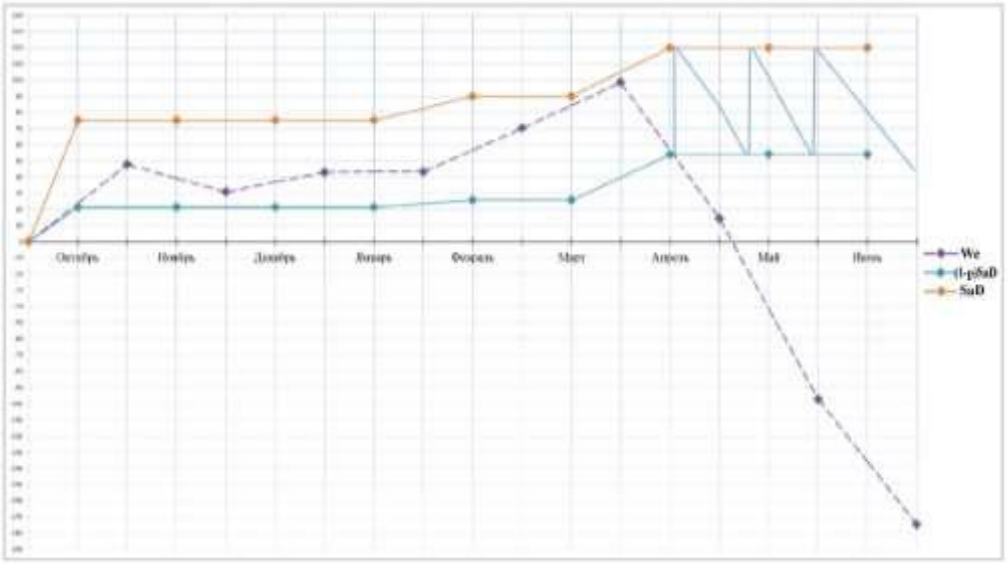

Figure 1 - An example of a graph- analytical calculation - a schedule of irrigation of winter wheat during the growing season with 25% coverage

The results of calculations of the regime of irrigation of winter wheat using the adapted FAO methodology, which correspond to the intra-seasonal distribution of the security of 25%, 50% and 75% of the moisture deficit for the DJizzakh region at the Dustlik weather station, are presented in Table 3.

Table 3 - Results of calculations p Mode and winter wheat irrigation for years' security of 25%, 50% and 75%

Security,%	Watering, number / rate					Irrigation rate , (net) m^3 / ha
	one	2	3	four	five	
25	20.10 715	04/16 880	8.05 880	05/27 880		3355
50	20.10 715	04/13 880	4.05 880			2475
75	20.10 715	2.05 880				1595

5. CONCLUSION :

As you can see, the irrigation norms of winter wheat for the year of 25% of the supply are almost 2 times greater than for the year of 75%, therefore it is advisable to take into account the variability of the regime of irrigation of winter wheat when designing and operating water facilities.

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