

Table S 1. Monthly precipitation, air temperature and humidity for the years of observation, Shymkent, southern Kazakhstan

Year	months												average annual air temperature	The sum of positive temperatures for the growing season of winter wheat
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII		
Air temperature, °C														
2018	0.6	1.13	6.8	13.6	18.6	24.0	25.5	26.1	20.0	12.3	3.8	2.0	12.869	-
2019	3.0	3.0	10.8	13.7	19.9	23.9	29.7	26.8	19.7	14.1	3.1	3.0	14.225	2533.1
2020	-0.1	4.7	10.1	14.7	20.0	24.5	27.8	25.4	19.0	11.4	2.1	-2.7		
2021	-0.2	5.2	7.1	14.4	22.3	26.9	-	-	-	-	-	-		
Precipitation, mm													Average monthly rainfall, mm	Precipitation during the growing season, mm
2018	73	81	81	69	57	19	3.1	3	3.1	44.2	85.3	67.2	48.83	196.7
2019	80.5	74.3	30.1	138.4	23.8	14	0.7	0.0	8.5	10.0	24.3	88.1	41.06	361.9
2020	81.7	103.5	28.6	101.9	98.3	1.9	0.8	11.7	2.9	0	67.8	30.1	44.10	
2021	22.7	91.3	162.0	36.7	33.6	2.1	-	-	-	-	-	-	58.07	
Relative air humidity, %													Average annual air humidity, %	Average humidity in the growing season
2018	-	-	-	-	-	-	-	-	32	54	73	80	59.75	69.0
2019	78	76.0	67	79	49	40	28	27	36	47	71	75	56.08	52.1
2020	89	76	56	65	59	36	32	37	35	40	62	84	55.92	
2021	72	68	71	52	46	30	-	-	-	-	-	-	56.50	

