

Table 1 – Results of the assessment of the permissible load norm on the total area of pastures in the context of regions determined on the basis of spatial analysis methods of remote sensing data

Region	Natural area	Ecological and geographic region (subzone)	Pasture type (predominant)	Duration of grazing period, days	Norm of pasture area per 1 head of farm animals							
					on restored and degraded lands, hectare							
					cattle		sheep and goats		horses		camels	
					restore d	degrade d	restore d	degrade d	restore d	degrade d	restore d	degrade d
1	2	3	4	5	6	7	8	9	10	11	12	13
North Kazakhstan region												
Zhambyl	forest-steppe	southern forest-steppe	feather grass- mixed herb, cereal-wormwood- mixed herb in combination with cereal-legume-mixed herb	160-180	5.9	8.6	1.2	1.7	7.1	10.2	8.3	12.0
Mamlut					4.2	6.1	0.8	1.2	5.0	7.3	5.9	8.5
Kyzylzhar					3.3	4.8	0.7	1.0	4.0	5.7	4.6	6.7
M.Zhumabayev					4.4	6.4	0.9	1.3	5.3	7.6	6.2	8.9
Akkayin					4.8	7.0	1.0	1.4	5.8	8.3	6.7	9.7
Akzhar	steppe	steppe with kolkis	complex of feather grass- mixed herb and fescue-wormwood, wormwood-cereal, cereal	160-180	1.4	2.0	0.3	0.4	1.7	2.4	2.0	2.8
Taiynsh			feather grass-meadow- mixed herb in combination with wormwood-cereal, cereal-wormwood- mixed herb		3.4	4.9	0.7	1.0	4.1	5.9	4.8	6.9

1	2	3	4	5	6	7	8	9	10	11	12	13
Timiryazev			red feather grass- mixed herb, fescue-wormwood		3.2	4.6	0.6	0.9	3.8	5.5	4.5	6.5
Shal Akyna			red feather grass-meadow- mixed herb, meadow		3.9	5.7	0.8	1.1	4.7	6.8	5.5	7.9
Yesil			feather grass-meadow- mixed herb		4.3	6.2	0.9	1.2	5.2	7.5	6.0	8.7
Ualikhanov		moderately arid steppe	red feather grass-feather grass in combination with feather grass-mixed herb and fescue-wormwood, wormwood-cereal		1.4	2.0	0.3	0.4	1.7	2.4	2.0	2.8
G.Musrepov			red-feather grass, cereal-legume-wormwood- mixed herb		4.3	6.2	0.9	1.2	5.2	7.5	6.0	8.7
Aiyrtau			feather grass- mixed herb, feather grass-fescue		4.1	5.9	0.8	1.2	4.9	7.1	5.7	8.3
Kostanay region												
Uzunkol	forest-steppe	southern forest-steppe	red feather grass- mixed herb, cereal and cereal-wormwood	170-180	10.1	14.6	2.0	2.9	12.1	17.5	14.1	20.5
Fedorov			wormwood- mixed herb and wormwood-cereal- mixed herb complex		7.3	10.6	1.5	2.1	8.8	12.7	10.2	14.8
Mendygari			complex of feather grass- mixed herb and fescue-wormwood, cereal-wormwood- mixed herb		10.1	14.6	2.0	2.9	12.1	17.5	14.1	20.5
Karabalyk			complex of feather grass- mixed herb and fescue-wormwood, cereal-wormwood- mixed herb		6.4	9.3	1.3	1.9	7.7	11.1	9.0	13.0
Altynsarin		moderately arid steppe	complex of cereal- mixed herb and cereal-wormwood		7.2	10.4	1.4	2.1	8.6	12.5	10.1	14.6
Auliekol			sandy-feather grass, feather grass-mixed herb and fescue-wormwood complex		6.7	9.7	1.3	1.9	8.0	11.6	9.4	13.6

1	2	3	4	5	6	7	8	9	10	11	12	13
Zhitikara			feather grass-fescue, complex of feather grass- mixed herb and fescue-wormwood		5.7	8.3	1.1	1.7	6.8	9.9	8.0	11.6
Karasu			feather grass-fescue, wormwood-cereal		5.1	7.4	1.0	1.5	6.1	8.8	7.1	10.4
Kostanay			feather grass- mixed herb, sand-feather grass, complex of feather grass- mixed herb and fescue-wormwood		8	11.6	1.6	2.3	9.6	13.9	11.2	16.2
Sarykol			feather grass- mixed herb in a complex of cereal- mixed herb and cereal-wormwood		7.4	10.7	1.5	2.1	8.9	12.8	10.4	15.0
B.Mailin			wormwood-cereal complex with feather grass- mixed herb and cereal-wormwood		6.2	9.0	1.2	1.8	7.4	10.8	8.7	12.6
Denisov			complex of feather grass- mixed herb and wormwood-cereal- mixed herb		6.6	9.6	1.3	1.9	7.9	11.4	9.2	13.4
Kamystin			feather grass-fescue, complex with feather grass- mixed herb and cereal-wormwood		5.7	8.3	1.1	1.7	6.8	9.9	8.0	11.6
Naurzum		arid steppe	feather grass-fescue with an admixture of wormwood, complex feather grass-fescue-wormwood and <i>Atriplex cana</i>		6.2	9.0	1.2	1.8	7.4	10.8	8.7	12.6
Amangeldy		moderately dry steppe	complex feather grass-fescue-wormwood and <i>Atriplex cana</i> , <i>Stipa sareptana</i> and fescue-wormwood, feather grass-fescue associations	180-200	3.9	5.7	0.8	1.1	4.7	6.8	5.5	7.9
Zhangeldy			complex wormwood-fescue, тырсыково- and fescue-wormwood, wormwood-cereal-saltwort		4.5	6.5	0.9	1.3	5.4	7.8	6.3	9.1
Arkalyk			fescue-wormwood, complex fescue-wormwood associations		6.2	9.0	1.2	1.8	7.4	10.8	8.7	12.6

1	2	3	4	5	6	7	8	9	10	11	12	13		
Pavlodar region														
Irtysh	steppe	moderately dry steppe	red feather grass-fescue, feather grass-wormwood-cereal - mixed herb associations	170-180	9.3	13.5	1.9	2.7	11.2	16.1	13.0	18.9		
Zhelezin			complex of feather grass-mixed herb and fescue-wormwood		7.5	10.9	1.5	2.2	9.0	13.0	10.5	15.2		
Terenkol		arid steppe	complex of feather grass-mixed herb and fescue-wormwood, sandy-feather grass		7.7	11.2	1.5	2.2	9.2	13.4	10.8	15.6		
Aktogay			sandy-feather grass, wormwood-cereal-saltwort, wormwood-cereal		6.2	9.0	1.2	1.8	7.4	10.8	8.7	12.6		
Uspensk			feather grass in a complex of feather grass-mixed herb cereal-wormwood		8.4	12.2	1.7	2.4	10.1	14.6	11.8	17.1		
May		moderately dry steppe	moderately dry steppe		complex feather grass-fescue-wormwood and Atriplex cana, wormwood-cereal-saltwort associations	4.9	7.1	1.0	1.4	5.9	8.5	6.9	9.9	
Shcherbaktin					wormwood-cereal-mixed herb	8	11.6	1.6	2.3	9.6	13.9	11.2	16.2	
Ekibastuz					complex of feather grass-fescue and wormwood, fescue-wormwood, cereal-wormwood	5.5	8.0	1.1	1.6	6.6	9.5	7.7	11.2	
Pavlodar					wormwood-cereal	6.4	9.3	1.3	1.9	7.7	11.1	9.0	13.0	
Aksu					complex is typical-wormwood-mixed with wormwood-cereal	7.1	10.3	1.4	2.1	8.5	12.3	9.9	14.4	
Akkulin					wormwood-cereal-saltwort complex	8.3	12.0	1.7	2.4	10.0	14.4	11.6	16.8	
Bayanaul					dry mountain steppe	feather grass-fescue, fescue-wormwood stony	6	8.7	1.2	1.7	7.2	10.4	8.4	12.2

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Karaganda region												
Osakar	steppe	moderately dry steppe	feather grass-fescue, fescue-wormwood associations	180-190	13	18.9	2.6	3.8	15.6	22.5	18.2	26.4
Nurin			complex fescue-wormwood, feather grass-fescue-wormwood and <i>Atriplex cana</i> associations		12.9	18.7	2.6	3.7	15.5	22.4	18.1	26.2
Bukhar-Zhyrau		dry steppe	feather grass-fescue, fescue-wormwood, feather grass-wormwood-cereal associations		13.1	19.0	2.6	3.8	15.7	22.7	18.3	26.6
Karkaraly			feather grass-fescue, fescue-wormwood, feather grass-cereal-wormwood, feather grass-cereal-mixed herb associations		12.5	18.1	2.5	3.6	15.0	21.7	17.5	25.4
Abay			feather grass-fescue, wormwood-feather grass-cereal associations		11.3	16.4	2.3	3.3	13.6	19.6	15.8	22.9
Shet	semi-desert	steppe desert	complex fescue-wormwood, wormwood-saltwort, cereal-wormwood	190-210	11	16.0	2.2	3.2	13.2	19.1	15.4	22.3
Aktogay			complex wormwood-saltwort, cereal-wormwood, wormwood associations		9.8	14.2	2.0	2.8	11.8	17.0	13.7	19.9
Ulytau region												
Zhanaarka	semi-desert	steppe desert	complex wormwood, fescue-wormwood, wormwood-saltwort-cereal associations	190-210	13.3	19.3	2.7	3.9	16.0	23.1	18.6	27.0
Ulytau		moderate semi-desert	complex sagebrush-saltwort, complex fescue-wormwood, complex wormwood-fescue-saltwort, wormwood-fescue		12.3	17.8	2.5	3.6	14.8	21.3	17.2	25.0

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Akmola region												
Zerendy	steppe	moderately arid steppe	feather grass-meadow-mixed herb, feather grass-mixed herb	170-180	9.9	14.4	2.0	2.9	11.9	17.2	13.9	20.1
Burabay			feather grass-mixed herb		9.6	13.9	1.9	2.8	11.5	16.6	13.4	19.5
Birzhan sal		arid steppe	feather grass-fescue, feather grass-mixed herb and fescue-wormwood		8.6	12.5	1.7	2.5	10.3	14.9	12.0	17.5
Sandytau			feather grass-meadow-mixed herb, feather grass-mixed herb associations		10.2	14.8	2.0	3.0	12.2	17.7	14.3	20.7
Bulandy			feather grass-meadow-mixed herb, feather grass-mixed herb associations		8.1	11.7	1.6	2.3	9.7	14.0	11.3	16.4
Akkol			feather grass-mixed herb, feather grass-fescue		7	10.2	1.4	2.0	8.4	12.1	9.8	14.2
Ereymantau			feather grass-fescue, fescue-wormwood complex		7.7	11.2	1.5	2.2	9.2	13.4	10.8	15.6
Yesil			feather grass-fescue, fescue-wormwood		10.3	14.9	2.1	3.0	12.4	17.9	14.4	20.9
Zhaksyn			feather grass-fescue		8.6	12.5	1.7	2.5	10.3	14.9	12.0	17.5
Astrakhan region			feather grass-fescue, wormwood-cereal associations		9.3	13.5	1.9	2.7	11.2	16.1	13.0	18.9
Atbasar			feather grass-fescue, wormwood-cereal associations		9.5	13.8	1.9	2.8	11.4	16.5	13.3	19.3
Shortandinsky			feather grass-fescue, feather grass-mixed herb		4.9	7.1	1.0	1.4	5.9	8.5	6.9	9.9
Zharkain			feather grass-fescue, fescue-wormwood		7.6	11.0	1.5	2.2	9.1	13.2	10.6	15.4
Egindykol		feather grass-fescue	7.4		10.7	1.5	2.1	8.9	12.8	10.4	15.0	
Tselinograd		moderately dry steppe	feather grass-fescue, feather grass-fescue-wormwood and Atriplex cana associations		8.3	12.0	1.7	2.4	10.0	14.4	11.6	16.8
Arshalyn			feather grass-fescue, fescue-wormwood		10.7	15.6	2.1	3.1	12.9	18.6	15.0	21.8
Korgalzhyn	wormwood-cereal-saltwort, feather-grass-fescue-wormwood, feather-grass-fescue steppes		6.5	9.4	1.3	1.9	7.8	11.3	9.1	13.2		

