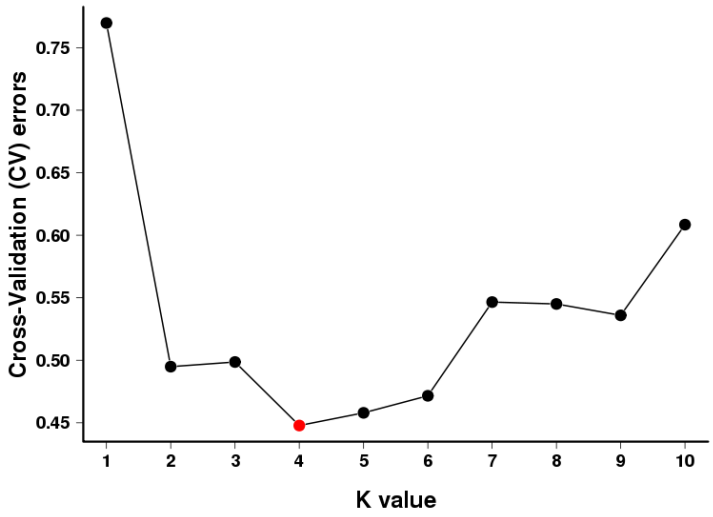

Figure S1. Cross-validation errors of Admixture for 10 *Artemia* populations

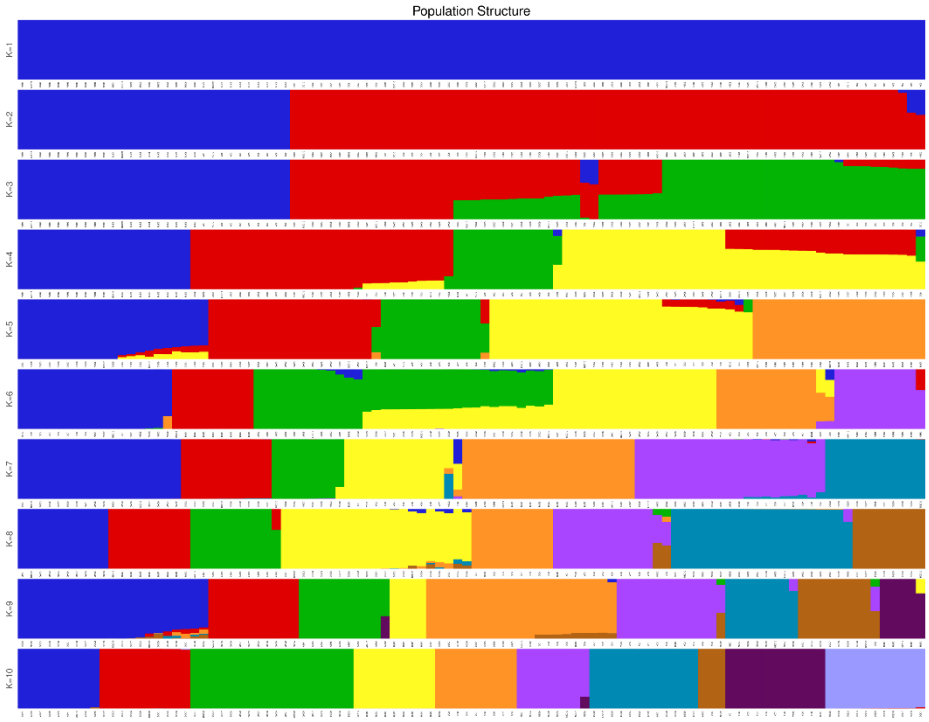

Figure S2. Population structure of *Artemia* in 10 inland salt lakes of China obtained based on Admixture

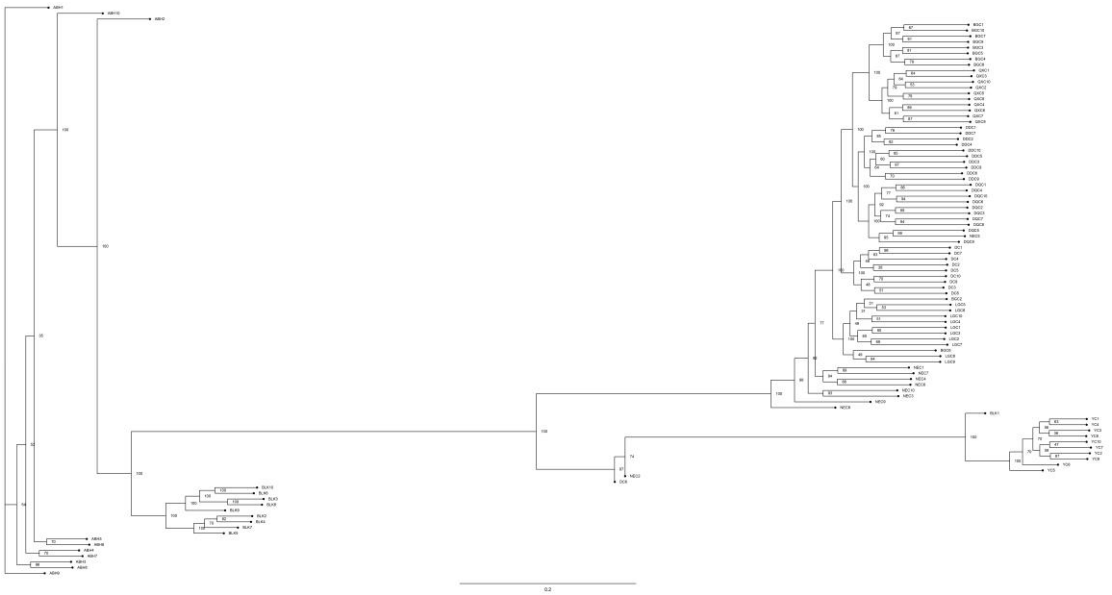

Figure S3. Posteriori probability for ML tree.

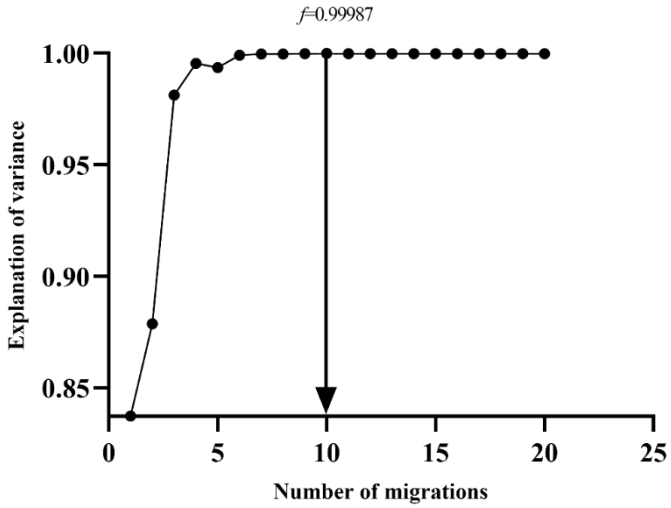

Figure S4. Explanatory variance for migration events. When the number of migrations was 10, the explanatory variables reached highest (99.987%).

Table S1. GPS points used for building species distribution models for *Artemia*.

Number	Longitude	Latitude	Groups	Locality
1	82.67083333	44.94583333	Xinjiang	ABH
2	82.6875	44.89583333	Xinjiang	ABH
3	82.69583333	44.87916667	Xinjiang	ABH
4	82.7875	44.9375	Xinjiang	ABH
5	82.8125	44.8625	Xinjiang	ABH
6	82.89583333	44.8875	Xinjiang	ABH
7	82.90416667	44.87916667	Xinjiang	ABH
8	82.92916667	44.95416667	Xinjiang	ABH
9	82.9375	44.9125	Xinjiang	ABH
10	83.00416667	44.87916667	Xinjiang	ABH
11	83.00416667	44.92083333	Xinjiang	ABH
12	83.02083333	44.95416667	Xinjiang	ABH
13	83.14583333	44.87083333	Xinjiang	ABH
14	83.87916667	44.92083333	Xinjiang	ABH
15	92.72916667	43.67083333	Xinjiang	BLK
16	92.74583333	43.69583333	Xinjiang	BLK
17	92.7625	43.6375	Xinjiang	BLK
18	92.7625	43.6625	Xinjiang	BLK
19	92.79583333	43.65416667	Xinjiang	BLK
20	92.79583333	43.67083333	Xinjiang	BLK
21	92.79583333	43.7125	Xinjiang	BLK
22	92.80416667	43.62083333	Xinjiang	BLK
23	92.8375	43.64583333	Xinjiang	BLK
24	92.84583333	43.62083333	Xinjiang	BLK
25	92.84583333	43.67083333	Xinjiang	BLK
26	93.00416667	43.50416667	Xinjiang	BLK
27	110.8041667	34.90416667	Shanxi	YC
28	110.8875	34.92083333	Shanxi	YC
29	110.8875	34.92916667	Shanxi	YC
30	110.9041667	34.90416667	Shanxi	YC
31	110.9291667	34.94583333	Shanxi	YC
32	110.9458333	34.95416667	Shanxi	YC
33	110.9708333	34.97916667	Shanxi	YC
34	110.9791667	34.97083333	Shanxi	YC
35	111.0041667	34.97916667	Shanxi	YC
36	111.0041667	35.00416667	Shanxi	YC
37	111.0125	34.9875	Shanxi	YC
38	111.0208333	34.9875	Shanxi	YC
39	111.0375	34.99583333	Shanxi	YC
40	111.0541667	35.0125	Shanxi	YC
41	111.0791667	35.02916667	Shanxi	YC
42	111.9208333	35.72916667	Shanxi	YC

43	89.8875	32.44583333	Eastern Nagri	QXC
44	89.89583333	32.4125	Eastern Nagri	QXC
45	89.92083333	32.42083333	Eastern Nagri	QXC
46	89.92083333	32.4625	Eastern Nagri	QXC
47	89.95416667	32.4625	Eastern Nagri	QXC
48	89.9625	32.4375	Eastern Nagri	QXC
49	90.00416667	32.49583333	Eastern Nagri	QXC
50	90.00416667	32.50416667	Eastern Nagri	QXC
51	90.02083333	32.42916667	Eastern Nagri	QXC
52	90.05416667	32.44583333	Eastern Nagri	QXC
53	90.07083333	32.47916667	Eastern Nagri	QXC
54	89.44583333	31.74583333	Eastern Nagri	BGC
55	89.45416667	31.7125	Eastern Nagri	BGC
56	89.47083333	31.6875	Eastern Nagri	BGC
57	89.5125	31.72916667	Eastern Nagri	BGC
58	89.5125	31.7625	Eastern Nagri	BGC
59	89.52083333	31.70416667	Eastern Nagri	BGC
60	89.5375	31.75416667	Eastern Nagri	BGC
61	89.54583333	31.8125	Eastern Nagri	BGC
62	89.57916667	31.77916667	Eastern Nagri	BGC
63	89.60416667	31.75416667	Eastern Nagri	BGC
64	86.6875	31.54583333	Eastern Nagri	DQC
65	86.70416667	31.5375	Eastern Nagri	DQC
66	86.7125	31.5875	Eastern Nagri	DQC
67	86.72083333	31.5625	Eastern Nagri	DQC
68	86.7375	31.54583333	Eastern Nagri	DQC
69	86.74583333	31.52916667	Eastern Nagri	DQC
70	86.74583333	31.59583333	Eastern Nagri	DQC
71	86.77083333	31.55416667	Eastern Nagri	DQC
72	86.77083333	31.5875	Eastern Nagri	DQC
73	86.7875	31.57083333	Eastern Nagri	DQC
74	85.67083333	30.84583333	Eastern Nagri	DDC
75	85.67083333	30.85416667	Eastern Nagri	DDC
76	85.67916667	30.82916667	Eastern Nagri	DDC
77	85.67916667	30.8375	Eastern Nagri	DDC
78	85.67916667	30.84583333	Eastern Nagri	DDC
79	85.67916667	30.85416667	Eastern Nagri	DDC
80	85.6875	30.8375	Eastern Nagri	DDC
81	84.69583333	32.2125	Western Nagri	DC
82	84.70416667	32.17083333	Western Nagri	DC
83	84.72083333	32.14583333	Western Nagri	DC
84	84.7375	32.2125	Western Nagri	DC
85	84.74583333	32.12916667	Western Nagri	DC
86	84.74583333	32.17916667	Western Nagri	DC

87	84.77916667	32.14583333	Western Nagri	DC
88	84.77916667	32.20416667	Western Nagri	DC
89	84.7875	32.1625	Western Nagri	DC
90	84.7875	32.1875	Western Nagri	DC
91	84.00416667	32.00416667	Western Nagri	LGC
92	84.0375	31.9875	Western Nagri	LGC
93	84.0375	32.0125	Western Nagri	LGC
94	84.07083333	32.02916667	Western Nagri	LGC
95	84.09583333	32.00416667	Western Nagri	LGC
96	84.10416667	32.02916667	Western Nagri	LGC
97	84.10416667	32.04583333	Western Nagri	LGC
98	84.1375	32.0625	Western Nagri	LGC
99	84.14583333	32.00416667	Western Nagri	LGC
100	84.17083333	32.32916667	Western Nagri	LGC
101	84.17916667	32.00416667	Western Nagri	LGC
102	84.17916667	32.0625	Western Nagri	LGC
103	84.1875	32.02916667	Western Nagri	LGC
104	84.22083333	32.04583333	Western Nagri	LGC
105	84.22083333	32.05416667	Western Nagri	LGC
106	82.17916667	32.30416667	Western Nagri	NEC
107	82.1875	32.29583333	Western Nagri	NEC
108	82.19583333	32.27916667	Western Nagri	NEC
109	82.20416667	32.3125	Western Nagri	NEC
110	82.2125	32.27083333	Western Nagri	NEC
111	82.2125	32.29583333	Western Nagri	NEC
112	82.22083333	32.29583333	Western Nagri	NEC
113	82.2375	32.25416667	Western Nagri	NEC
114	82.2375	32.27916667	Western Nagri	NEC
115	82.24583333	32.27083333	Western Nagri	NEC

Table S2. Nineteen climate variables from WorldClim

Codes	Climate variables
BIO1	Annual Mean Temperature
BIO2	Mean Diurnal Range
BIO3	Isothermality
BIO4	Temperature Seasonality
BIO5	Max Temperature of Warmest Month
BIO6	Min Temperature of Coldest Month
BIO7	Temperature Annual Range
BIO8	Mean Temperature of Wettest Quarter

BIO9	Mean Temperature of Driest Quarter
BIO10	Mean Temperature of Warmest Quarter
BIO11	Mean Temperature of Coldest Quarter
BIO1	Annual Precipitation
BIO13	Precipitation of Wettest Month
BIO14	Precipitation of Driest Month
BIO15	Precipitation Seasonality
BIO16	Precipitation of Wettest Quarter
BIO17	Precipitation of Driest Quarter
BIO18	Precipitation of Warmest Quarter
BIO19	Precipitation of Coldest Quarter

Table S3. Summary of SLAF data collected in the final assembly of 100 samples of *Artemia*.

Population	Sample ID	Total Reads	GC Percentage (%)	Q30 Percentage (%)	SLAF number	Total depth	Average depth
1	ABH1	1699828	38.78	92.23	97690	1464659	14.9929
1	ABH10	3262696	38.6	92.88	125695	2847310	22.6525
1	ABH2	3564923	36.75	91.93	116844	3068494	26.2615
1	ABH3	3499317	37.72	92.74	133044	3066526	23.049
1	ABH4	4142237	37.02	92.46	123397	3630086	29.4179
1	ABH5	3902474	37.09	92.3	124570	3394305	27.2482
1	ABH6	2894818	36.92	92.42	115240	2526865	21.927
1	ABH7	5744939	36.99	92.82	131753	5054207	38.3612
1	ABH8	4028403	36.99	92.59	123170	3518325	28.5648
1	ABH9	4841954	36.7	92.39	127996	4200712	32.8191
2	BGC1	2551544	36.68	93.17	110059	2224917	20.2157
2	BGC10	2340448	36.63	92.87	127104	2011836	15.8283
2	BGC2	3510949	36.98	93.11	142219	3076398	21.6314
2	BGC3	2441528	36.71	93.16	124889	2112630	16.9161
2	BGC4	2463736	36.86	93.2	124507	2135843	17.1544
2	BGC5	2913786	36.58	93.02	137653	2520211	18.3084
2	BGC6	2450389	37.03	93.01	125797	2138391	16.9987
2	BGC7	2869300	36.86	93.08	140197	2494791	17.7949
2	BGC8	4142840	36.85	93.01	165909	3593784	21.6612
2	BGC9	2516997	36.93	93.01	128438	2167548	16.8762
3	BLK1	2975777	36.96	92.33	121460	2488142	20.4853
3	BLK10	4697499	37.27	92.08	144438	4068775	28.1697

3	BLK2	3234659	36.21	92.02	134701	2788038	20.698
3	BLK3	4077422	36.56	92.04	149140	3499627	23.4654
3	BLK4	3826911	36.4	91.74	145625	3260632	22.3906
3	BLK5	4347280	36.89	92.08	144099	3774290	26.1923
3	BLK6	3298337	37.34	91.81	138452	2835904	20.4829
3	BLK7	3879356	37.11	91.5	143074	3331318	23.2839
3	BLK8	4389326	37.49	91.76	144816	3781069	26.1095
3	BLK9	5723387	36.97	92.06	150657	4970713	32.9936
4	DC1	1535238	38.82	92.64	111298	1312435	11.7921
4	DC10	2190241	38.71	92.48	124948	1885585	15.091
4	DC2	2266807	38.26	92.17	121743	1962053	16.1164
4	DC3	3746241	37.44	92.18	135250	3270957	24.1845
4	DC4	1634710	38.42	92.32	110212	1407707	12.7727
4	DC5	3543805	37.38	91.7	138235	3044192	22.0219
4	DC6	3272007	36.16	92.52	96738	2906148	30.0414
4	DC7	1843655	38.17	92.48	116874	1585339	13.5645
4	DC8	2792645	37.61	91.96	135462	2384208	17.6006
4	DC9	3353456	38.09	92.41	137641	2924627	21.2482
5	DDC1	2399048	38.07	91.83	125674	2078327	16.5374
5	DDC10	4521743	36.97	92.03	152376	3951592	25.9332
5	DDC2	940769	39.64	92.69	92528	787200	8.5077
5	DDC3	4036207	37.68	92.62	158219	3525774	22.2841
5	DDC4	3376597	37.64	92.54	144720	2944308	20.3449
5	DDC5	3321071	36.45	89.59	150437	2719264	18.0758
5	DDC6	4235565	37.11	91.88	128192	3704458	28.8977
5	DDC7	2813487	37.94	92.62	124823	2458396	19.6951
5	DDC8	4533370	37.44	92.75	142786	3977867	27.8589
5	DDC9	4723535	37.35	92.32	144293	4139248	28.6864
6	DQC1	3120385	37.95	93.15	153976	2711551	17.6102
6	DQC10	2903427	37.6	92.99	147704	2536848	17.1752
6	DQC2	2866912	38.06	93.36	152503	2492503	16.344
6	DQC3	2377279	38.36	93.32	136511	2072802	15.1841
6	DQC4	2951373	38	93.12	148845	2561824	17.2114
6	DQC5	1890707	38.76	93.31	130810	1626416	12.4334
6	DQC6	3398993	38	93.31	147880	2982489	20.1683
6	DQC7	1455594	38.77	93.17	118538	1238224	10.4458
6	DQC8	2100942	38.07	92.99	134112	1819185	13.5647
6	DQC9	3255839	37.52	93.16	151854	2860618	18.8379
7	LGC1	4029460	36.79	91.75	182148	3379421	18.5532
7	LGC10	4203491	36.78	91.92	175701	3559675	20.2598
7	LGC2	2384033	36.53	91.65	156989	2035285	12.9645
7	LGC3	2362934	36.67	91.65	158358	1996738	12.609
7	LGC4	2104124	36.39	91.62	147229	1736172	11.7923
7	LGC5	2712261	37.23	92.22	157845	2271615	14.3914

7	LGC6	3363987	36.64	91.87	160301	2868263	17.893
7	LGC7	3427560	36.63	91.85	167230	2900533	17.3446
7	LGC8	3518415	36.41	91.27	155020	2966337	19.1352
7	LGC9	3736168	36.89	91.8	173828	3143179	18.0821
8	NEC1	2551731	37.34	93.04	130951	2208176	16.8626
8	NEC10	2327363	38.07	93.07	148007	1979879	13.3769
8	NEC2	2004955	36.37	93.05	89987	1725729	19.1775
8	NEC3	1888183	38.36	92.82	146511	1593068	10.8734
8	NEC4	2591814	38.37	93.12	142999	2247531	15.7171
8	NEC5	1900417	39.09	93.5	133354	1639157	12.2918
8	NEC6	3374576	37.12	93.01	141885	2962785	20.8816
8	NEC7	1655557	38.07	92.77	128631	1398768	10.8743
8	NEC8	2693136	37.98	93.12	174095	2305972	13.2455
8	NEC9	1919523	38.25	92.96	142980	1610006	11.2604
9	QXC1	2500655	36.5	92.06	147851	2146841	14.5203
9	QXC10	1969900	37.18	92.03	126961	1682240	13.2501
9	QXC2	2543087	37.09	92.15	151400	2174754	14.3643
9	QXC3	2680081	37.01	92.33	169389	2260655	13.3459
9	QXC4	2725764	37.71	92.71	183306	2290058	12.4931
9	QXC5	2112240	37.57	92.49	148582	1798337	12.1033
9	QXC6	2317864	37.61	92.61	165513	1983634	11.9848
9	QXC7	2710691	37.54	92.53	169214	2308957	13.6452
9	QXC8	1977022	37.27	91.8	134704	1668300	12.3849
9	QXC9	1686456	36.89	91.85	127630	1436179	11.2527
10	YC1	3865041	36.96	91.89	131300	3257341	24.8084
10	YC10	4424317	37.21	91.55	138605	3694062	26.6517
10	YC2	4564211	36.5	91.87	134609	3864269	28.7074
10	YC3	4338756	37.23	92.31	133857	3683415	27.5175
10	YC4	3782956	36.68	92.06	129273	3203692	24.7824
10	YC5	4527029	36.63	91.9	134291	3825407	28.486
10	YC6	5101369	36.61	92.07	139979	4337499	30.9868
10	YC7	5288504	37.14	91.72	141374	4459837	31.5464
10	YC8	3918596	36.89	91.56	133692	3294781	24.6446
10	YC9	5121619	37.21	91.56	152372	4285472	28.1251

Table S4. Summary statistics of pairwise F_{ST} values between the 10 populations of *Artemia*, all the F_{ST} values are statistically significant.

Population	ABL	BLK	YC	QXC	BGC	DQC	DDC	DC	LGC	NEC
ABL	0									
BLK	0.229897	0								
YC	0.62095	0.484243	0							
QXC	0.516369	0.45947	0.50551	0						
BGC	0.501837	0.445055	0.494539	0.084811	0					

DQC	0.496393	0.443122	0.493703	0.098299	0.091905	0				
DDC	0.485158	0.433213	0.481174	0.089222	0.081536	0.065088	0			
DC	0.508036	0.450292	0.508578	0.115179	0.099544	0.094581	0.085844	0		
LGC	0.49253	0.440626	0.492571	0.117324	0.095379	0.093	0.083868	0.089567	0	
NEC	0.477059	0.427793	0.481681	0.116279	0.100884	0.091316	0.083707	0.088778	0.079332	0

Table S5. Best fit MAXENT model based upon delta AICc from ENMeval.

Groups	Mean AUC	Mean OR5	AICc	delta.AICc	n
Xinjiang	1.997236255	0.166666667	646.4244705	0	14
Shanxi	1.999699573	0	375.8223147	0	7
Eastern Nagri	1.924703908	0	1150.072665	0	15
Western Nagri	1.999729772	0	720.6115062	0	9

AUC: area under the curve, OR5: omission rate of testing locNagrities at the 5% training threshold, AICc:Akaike's Information Criterion corrected for small sample sizes, n: number of parameters in model.

Table S6. AUC values for the model.

Period	Groups	Climate model	AUC values
Present	Xinjiang		0.965
	Shanxi		0.998
	Eastern Nagri		0.976
	Western Nagri		0.999
Future	Xinjiang	CCSM4	0.967
	Shanxi		0.998
	Eastern Nagri		0.974
	Western Nagri		0.999
Mid-Helocene	Xinjiang	CCSM4	0.984
	Shanxi		0.998
	Eastern Nagri		0.980
	Western Nagri		0.999
LGM	Xinjiang	CCSM4	0.982
	Shanxi		0.998
	Eastern Nagri		0.970
	Western Nagri		0.999
LIG	Xinjiang		0.976
	Shanxi		0.998
	Eastern Nagri		0.977
	Western Nagri		0.999

Table S7. Proportion of present distribution area.

	Xinjiang	Shanxi	Eastern Nagri	Western Nagri
Non-suitable area	67.65%	65.33%	55.77%	82.33%
Low suitable area	23.31%	27.08%	21.85%	15.55%
Mid suitable area	7.76%	5.12%	14.09%	1.81%
High suitable area	1.27%	2.48%	8.29%	0.31%