3 - 39 Distribution Characteristics of Soil Nutrients and Salt Content of Northwest Arid Region in Our Country ——with the Industrial Park in Gansu as an Example

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According to the poor nutrient and soil salinization of Wuwei industrial park in Gansu in Northwest arid region, we collected a large number of samples in the region and measured the soil salinity and nutrient content in 0∼20 cm. By the statistical analysis and comparison the values of the water content, pH, salinity, organic matter and available nitrogen phosphorus and potassium (NPK) in Table 1, our results indicated that: (1) In the sample region, besides the low water content, the degree of soil salinization is predominant and the majority of soil belong to the moderate or severe saline-alkali land. (2) Due to the low nutrient content, the soil is relatively poor. There are obvious differences between the soil organic matter and the available NPK[1]. In short, the nitrogen contents of the soil in the region are seriously rare. The available phosphorus contents were at a moderate or deficient level, and the available potassium contents were at a sufficient level or an adequate level compared with the classification standard of the second general survey of soil (Table 2).

As a final statement, we suggested that the applications of the physical, chemical and biological measurement could reduce the degree of soil salinity[2]. At the same time, it was proposed that there are many methods to improve soil fertility, such as the proper use of organic, nitrogen and phosphorous and potassium fertilizers[3].

Table 1 Average of soil salinity and nutrient contentin 0∼20 cm of different experiment sites.

Character	Sample points	Moisture/%	PH	Organic matter/%	Soluble/%	Available potassium (mg/kg)	Available nitrogen (mg/kg)	Available phosphorus (mg/kg)
Sand	6	4.63a	8.48a	0.69a	0.12a	89.21a	34.52a	17.68a
Clay	6	6.38a	8.18a	1.10b	0.22b	146.67b	70.67b	3.34b
Loam	8	9.88b	8.41a	0.88a	0.16a	108.45a	48.89a	12.53b

Table 2 Classification standard of the second general survey of soil.

Classification standard	The organic matter	Available nitrogen	Total phosphorus	Available potassium
Abundant	>4	>150	>40	>200
Satisfactory	3∼4	120∼150	20∼40	150∼200
Moderate	2∼3	90∼120	10∼20	100∼150
Minor deficiency	1∼2	60∼90	5∼10	50∼100
Deficiency	0.6∼1	30∼60	3∼5	30∼50
Extreme deficiency	<0.6	<30	<3	<30

References

[1] M. Sadiq, PedosPhere, 17(2007)82.

[2] G. Singh, Land Degradation and Development, 20(2009)367.

[3] Sp. McGrath, F. J Zhao, LombiE. Advances in Agronomy, 75(2002)l.