Volume 2, Issue 11, November - 2024 **ISSN (E):** 2938-379X

# LEVELS OF RISK OF SOIL DEFLATION (On the example of the Syrdarya region)

Мухаммад Исматуллаевич Умаров1.,
Ташкентский государственный аграрный университет., к.с/х.н., с.н.с
E-mail: umarov.7878@mail.ru.

Низамов Собиржон Аълаевич 2,
д.ф.с/х.н (PhD), с.н.с.,
Институт почвоведения и агрохимических исследований.,

Абсаломова Мадинахон Хайрулла кизи.,
Ташкентский государственный аграрный университет., магистр.,

Ғайбуллаева Азиза Шавкат қизи
Ташкентский государственный аграрный университет студентка4

Алманов Абрам Бўрон ўғли
Ташкентский государственный аграрный университет студент5

**Abstract**
This article presents the results of studies conducted in the Syrdarya region, which make it possible to reduce the impact of deflation on soils, as well as to observe various deflationary processes on irrigated lands in the region. Based on the results of experiments conducted in the region, it is recommended to sow industrial crops in the range of crops to restore, increase and protect the fertility of deflated soils.

**Keyword**. Wind erosion, crops, soil fertility, deflation, experimental field.

## Introduction

Proceeding from the fact that irrigated soils form the basis of agricultural production in our country, soils are degraded under the influence of various natural and anthropogenic factors in the areas of irrigated agriculture, in particular, in the Mirzachul oasis, which is a historical place. factors, such a category as effective use of land, restoration, preservation and improvement of soil fertility, regular increase in crop yields remains one of the main tasks of our time.

As we all know, wind erosion is a natural process in which the soil moves from one place to another under the influence of the force of the wind. At present, this process is causing great economic and environmental damage in all regions.

The "Action Strategy" developed at the initiative of the President of the Republic of Uzbekistan Shavkat Mirziyoyev has brought the agricultural sector of our country and its structural changes to a logically new stage [1].

In connection with the rapid development of science and technology in the world, as a result of the increasing use of natural resources for economic purposes, lands are being devastated, quarries are being formed, forests are being cut down, and more and more crops are being harvested from crops. In order to obtain water, there is an indiscriminate use of water, the use of heavy equipment in sown fields, and the destruction of soil grains [3].

According to the international organization FAO, "*today a third of the world's soil cover is degraded to one degree or another, every minute 10 hectares of soil are degraded around the world, desertification is observed on 23 hectares of land.*"

**Research Methodology**

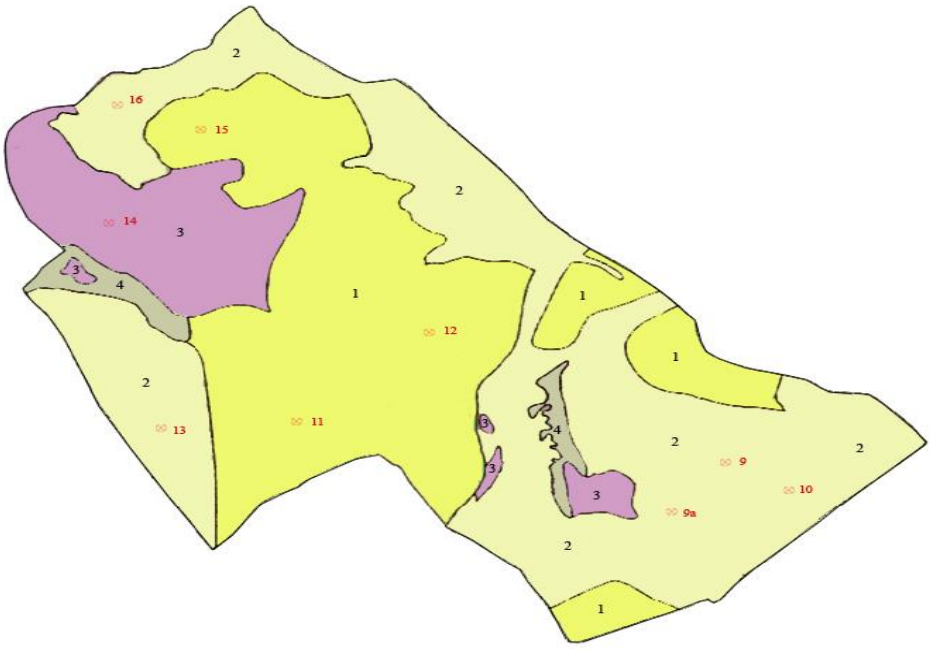
The research was carried out on the basis of generally accepted methods in soil science [1, 2, 3, 4, 5, 6].

In the experiments carried out, it was planted as an agronomic measure - as a protective crop of corn. In order to determine the effectiveness of sowing corn as a means of increasing resistance to deflation, a field experiment was carried out in the following 4 options (*on the example of cotton*).

**Based on the above, in the conditions of the object of research**

In 2003-2006, key areas were selected from the areas covering the Mirzachul oasis, from the farm "Guliston" (*Saykhunabad district*). Soil deflation risk map of the farm "Guliston" (*Saykhunabad district*)

**Scale 1: 5000**
**Year 2008**



| Color | Degree of deflation | Site, hectare |
|---|---|---|
| | Weak | 405 |
| | Average | 458 |
| | Strong | 133 |
| | Unverified field | 22 |

1/7 Differences in soils and their limits

⊗ The point where the section is located

**Classification of soils of the experimental field:** The data of the field experiment conducted in the Syrdarya are of great diagnostic importance in determining the morphological features and types of soils, in describing the properties of soils, and in determining the degree of danger of deflation**.** On the basis of the studies carried out, the territory of the Syr Darya was divided into zones with low, medium and high risk of deflation. Therefore, field experiments were carried out in order to develop measures to protect lands with a high risk of deflation from wind erosion processes. Field experiments were carried out on newly irrigated light mechanical soils. More than 30% of the area of irrigated lands of the Mirzachul plain of the Jizzakh region and 31.5% of the area of irrigated lands of the Syrdarya region are sands with light mechanical composition. The total area of irrigated land in Mirzachul is about 530,428 hectares, of which 31.2% of the area is of light mechanical composition," said V.E. Sektimenko, A.Y. Ismanov [95].

**Research results and their analysis.** When studying the effect of the measures taken against them on the morphological parameters of the soil, deflation processes, special importance was attached to the thickness of the humus layer, granularity and mechanical composition of the soil of each site. Here we present samples of morphological recording of the cross-section of the soil, taken from the site of the field experiment for the second time.

2 – Section by M.I. Umarov (October 25, 2004). The soil is moderately deflated, newly irrigated, lightly loamy, moderately saline, gray-meadow. Cotton field, 600 m north of the highway.

0–30 cm The color is gray, the upper part of the layer is slightly dried, the lower part is moist, light sandy, fine-grained, moderately dense, salt spots are scattered and veined, there are small roots, transitional in color to the next layer.

30–57 centimeters Light gray, moderately moist, light sandy, dusty, fine, very dense, roots and salt spots are found. The transition to the next layer occurs gradually.

57–104 cm Light gray, moist, light sandy, fine-grained, uncompacted, there are also traces of roots and insects and rotten roots, the transition to the next layer - according to the mechanical composition.

104–129 centimeters Gray in color, moist, heavy sand, layered in cross-section, very dense, roots are less common, there are small nests of insects, depending on the color of the transition to the next layer.

129–145 cm Consisting of light gray and dark gray spots, new wounds of carbonates and gypsum particles have appeared, wet, heavy sandy, sectioned, thickened, rusty spots appear, the color and mechanical composition of the transition to the next layer are different.

According to practical research, alfalfa under wheat or rye retains dust very well and protects the soil from weathering. By the time of sowing cotton (early April), the height of alfalfa and wheat reaches 40-50 cm, and in May - 90-100 cm. Cotton-alfalfa crop rotation was studied and implemented simultaneously with the use of alfalfa as an anti-erosion means of soil protection.

## 1. Conclusion, suggestions and recommendations.

Winter wheat, sorghum, corn (60 days old), Sudan grass and other fast-growing crops can be used to create protective crops. At the same time, the distance between protective crops is 15-25 m, and their width should not exceed 2-2.5 m.

Winter wheat and rye are sown in autumn and soften the row spacing to a depth of 7-9 cm in softeners. Wheat should be watered 2-3 times before the end of the growing season, in the spring it is recommended to apply mineral fertilizers at the rate of 100 kg / ha of pure nitrogen to accelerate its growth.

## REFERENCES:


1. Resolution of the President of the Republic of Uzbekistan PQ-277 dated June 10, 2022.
2. Yelyubaev S.M. Scientific foundations for identifying and assessing erosion-hazardous lands of the irrigated zone of the Republic of Uzbekistan and ways to improve their production capacity. dis... dock. Agricultural Sciences. - T., 1994. - 44 p.
3. Kachinsky N.A. Physics of soils. - Moscow, Part I. 1965.- 318 p.
4. Makhsudov Kh.M. Some aspects of the protection of irrigated gray soils. Part 1. - Samarkand, 2002. - B. 98.
5. Makhsudov Kh.M., Adilov A.A. Erosion science. - Tashkent, 1998. - 3-21 p.
6. Mirzazhonov K. Scientific Foundations of Borby with Wind Erosion on Irrigated Lands of Uzbekistan. - Tashkent, Publishing House "Fan", 1981. - 213 p.
7. Nizamov S.A., Umarov M.I. Impact on the environment of fuel residues and fumes used by thermal power plants in the production of thermal energy. – International Multidisciplinary Research in Academic Science (IMRAS)., xttps://zenodo.org/resords/10892000 Volume. 7, Issoue 03, March (2024).
8. Низамов С.А, Рискиева Х.Т, Умаров М.И, Кузиев Ж.М, Мирсодиков М.М. “Effect of cadmium on agrochemical and ecological status of irrigated soils” Ye3S Web of Conf. Volume 389, 2023 Ural Yenvironmental Science Forum “Sustainable Development of Industrial Region” (UESF-2023).

9. Nizamov S.A., Umarov M.I., Kuziev Zh.M. "The importance of combining strips in the prevention of wind erosion" Bulletin of Agrarian Science of Uzbekistan // Scientific Practical Journal, Tashkent-2023, Special Issue. №3(9/2) 2023
10. Guidelines for Conducting Chemical and Agrophysical Analises of Soils in Land Monitoring. Ed. by A.Zh. Bairov, M.M. Tashkuzieva, et al. - Tashkent: "GosNIIPA", 2004. - 260 p.
11. Sektimenko V.E., Ismanov A.Zh. Soils of the Syrdarya and Jizzakh regions / Public monograph. – Tashkent: "FAN", 2005. – P. 6-20.
12. Umarov M.I. Ways to prevent deflationary processes in the Mirzachul district. diss... Ph.D. - T.: 2009. Pp. 6-8.
13. Umarov M.I. Ways to prevent deflationary processes in the Mirzachul district" Monograph - Tashkent: Publishing house "Fan Ziyosi", 2021, pp. 85-88.
14. Umarov M.I., Inomov B.N. Morphogenetic characteristics of deflated soils. Zemlya Uzbekistana // Scientific-Practical and Innovative Journal, Tashkent-2022, Issue 4.

Web of Teachers: Inderscience Research
webofjournals.com/index.php/1