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SOIL SALINIZATION IN THE AGRICULTURAL LANDS OF ARMAVIR AND BAGHRAMYAN REGIONS

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The degree of salinity of the agricultural lands of Armavir and Baghramyan Regions was evaluated. Soil samples were collected from 66 agricultural lands, which are almost evenly distributed in Armavir and Baghramyan Regions, at the end of the irrigation season (October) in 2023. To determine the degree of salinity, the electrical conductivity of the samples was the primary indicator assessed. The study's findings indicate that there was a notable buildup of soluble salts in the upper soil horizons, which potentially decreased soil productivity. Considering this, it is crucial to manage the region's soils sustainably and with constant observation.

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Introduction. Soil salinity is an initial land degradation process and a primary challenge to global food security and environmental sustainability that reduces agricultural production especially in arid and semi-arid regions, requiring comprehensive monitoring and management [1]. It is well recognized as an ongoing process that results from both natural and human-caused events, such as excessive transpiration, high salt levels and poor irrigation properties of groundwater, a lack of precipitation, and agriculture [2, 3]. According to the USA Salinity Research Group [4], a salty soil is one that has an exchangeable sodium percentage (ESP) of less than 15, a pH of less than 8.5, and an electrical conductivity (EC) value more than 4 *dS/m*. Salinity affects 1.125 billion hectares at the moment, with 76 million of those hectares being impacted by human activity. Since, it is predicted that salinity would impact 30% of arable land worldwide during the next 25 years and around 50% of land by the end of this century, salinity is considered a significant issue on a global scale [5]. The Ararat Plain, an important agricultural area of Armenia, is likewise severely threatened by salinity stress, which significantly hinders this region's agricultural potential. The viability of agriculture and food security is seriously threatened by the salinization of almost 30 000 *ha* of Armenian soil. This underscores the pressing requirement for innovative approaches, such as halophyteremediation, to mitigate soil salinity in regions such as the Ararat Plain [6].

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One of the main obstacles to both sustainable development and global food availability is salinity of the soil. The issue might rapidly extend to untouched places as global warming picks up speed [7]. Plant health and soil properties may be negatively impacted by excessive salt levels [8, 9]. Presently, it is evident that soil salinity has reached a worldwide scale, leading to a decrease in soil productivity and biodiversity, land degradation, and desertification. The term refers to the build-up of soluble salts in soil that have an impact on agricultural yield, environmental quality, and financial stability [10].

Natural main salinization and man-made secondary salinization are the two main types into which soil salinity creation can be divided [11]. Natural main salinization is the process by which some or all of the processes listed below mobilize salts from the soil or groundwater to the surface, creating a condition with a high salinity [12]. Nevertheless, there is variation in the causes of natural main salinization over duration and location, which has an impact on managing and assesing soil salinity [13]. Excessive use of irrigation water in agriculture leads to human-caused secondary salinization, which raises salinity amounts in the soil's uppermost layer [11]. Although the principles causing creation and risk-driving vary, the two mechanisms causing soil surface salinity are comparable [14]. The buildup of soluble inorganic salts, primarily composed of alkali and alkaline earth metals like calcium and sodium as well as the anions that are related to them, such as carbonate, sulfate, hydrocarbonate, and chloride, is what causes soil salinization [15].

Increasing soil salinity has an impact on soil quality [16, 17], which then influences plant development and productivity and may ultimately cause soil degradation [18–21]. Reduced agricultural yield has been demonstrated to occur when salt affects the physical, chemical and biological productivity of the soils [22]. When too much salt causes colloid soil fragments to inflate and spread, the physical characteristics of the soil are altered. This can lead to problems with water and air circulation, ability to retain water, reduced root permeability, and growth of seeds [23]. Soil compaction results from sodium's dispersive activity on soil fragments, which also modifies the spacing of pore sizes and lowers the soil's overall volume. Clay disperses more readily when the soil's agglomeration durability is lowered due to a higher salt content [24]. Inappropriate management can result in decreased crop yield or complete crop failure, which lowers the worth of the land and ultimately causes the property to be abandoned for farming purposes [25]. Salinity inhibits the sprouting of seeds, the emergence of seedlings, and the development of plants because it makes it harder for the soil solution to absorb water and nutrients [26]. In spite of humid soil, plants may perish from drought or water shortages if the quantity of salt in the environment increases to a certain point [27].

The issue of soil salinization, which affects vast tracts of farmland, is receiving increased focus, particularly in scientific communities. Scientific investigation is necessary to fully understand the complicated problem of soil salinity and how it affects crop yields in the Ararat Plain, an area with a long history of agriculture. A thorough examination is required since salinity stress is a modern concern this previously important place must deal with. In light of these conditions, the primary goal of our study was to determine the salinity degree of farmland in the Armavir and Baghramyan Regions. This information will be useful for improving and managing land in semi-arid areas.

Materials and Methods.

Study Area. Armavir and Baghramyan Regions are located in the central part of the Ararat Plain. The climate in that regions is sunny, dry continental. The amount of annual precipitation does not exceed 300 *mm*. The maximum temperature is 41°C, the minimum is −15°C. The relief of the study area is mainly flat, with the elevation of 857–1180 *m* AMSL. The main soil types found in the study area are the following: irrigated meadow brown soils (Anthrosols), hydromorphone saline-alkaline soils (Solonetzes-Solonchaks), semi-desert brown soils (Calcisols) and saline-alkaline [28].

Sample Collection and Analysis. Soil samples were collected from 66 agricultural lands, which are almost evenly distributed in Armavir and Baghramyan Regions, at the end of the irrigation season (October) in 2023 (Fig. 1). An AMS Basic Soil Sampling Kit, a specialized sampling tool, was used to collect the samples. GPS was used to identify the heights and spatial coordinates of the soil sample locations. With the exception of a few observation points (such as the MSY-35, SO-46 observation points, where sampling was done down to a depth of 30 *cm*), because of the local geological features, the majority of the sampling was done from four soil layers 0–10 *cm*, 10–30 *cm*, 30–60 *cm*, and 60–100 *cm*. The envelope collection strategy was followed when doing the sampling at each location [29].

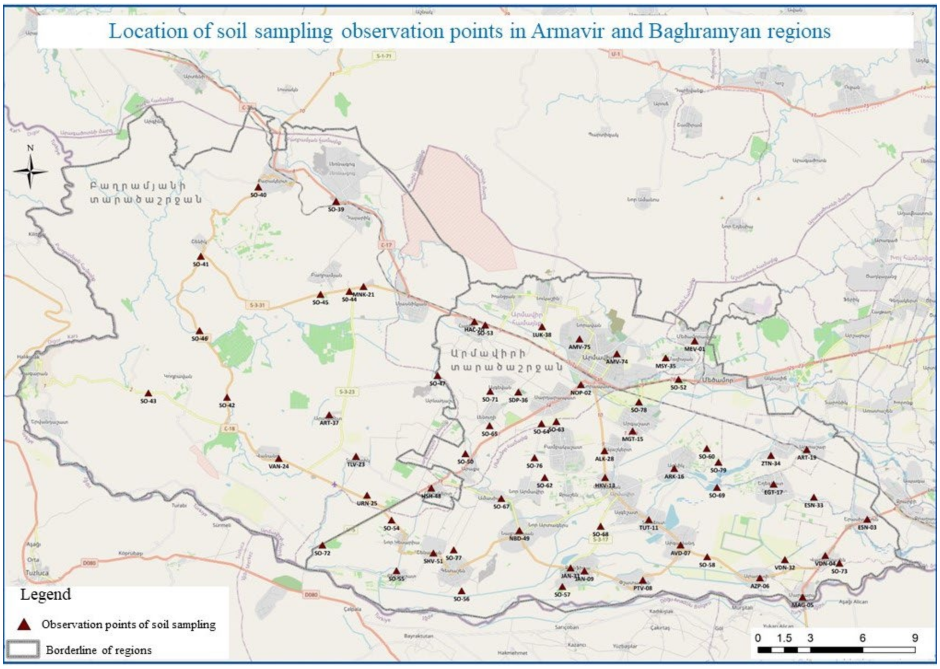

Fig. 1. Map of Armavir and Baghramyan Regions showing the soil sampling observation points.

The standard method for determining salinity degree of soil is to take soil samples and measure electrical conductivity in a laboratory (by handheld conductivity; Model MARK-603). A common metric for characterizing soil salinity is the electrical conductivity of the soil extract [30]. Concentrated paste extract is the conventional technique used to calculate the EC of soil (EC_e). Nevertheless, the challenge of figuring out the right water concentration threshold makes it tough to prepare a saturated paste extract. One way to get around this barrier is to use a 1:*n* (*n* = 1, 2, 2.5, 5, 10) soil to water extract ratio. In contrast to saturating extracts, this approach has several benefits of ease, shorter processing times, and lower costs. Since this ratio was deemed appropriate for determining soil salinity degree in numerous investigations, we selected a soil to water proportion of 1:5 [30–32]. The formulae validated in [33] were utilized to convert $EC_{1:5}$ to EC_e. For clay soil $EC_e = 7.36\ EC_{1:5} - 0.24$, for loamy soil $EC_e = 7.58\ EC_{1:5} + 0.06$, and for sandy soil $EC_e = 8.22\ EC_{1:5} - 0.33$. Concentrated paste extract was used to evaluate the salinity degree of the soil despite the fact it was not tested explicitly. The scale shown in Tab. 1 [4] provides the EC_e-based method for assessing the salinity level of soil.

Table 1

Classification of soil salinity degree according to EC_e

Salinity degree	Range of EC_e, *dS/m*	Description
Non	0–2	For all plant species, the impacts of salinity are minimal
Slight	2–4	Extremely sensitive crops may have limited harvests
Moderate	4–8	The harvests of numerous crops are limited
High	8–16	The yield of just resistant crops is sufficient
Extreme	>16	Only some extremely resistant crops can survive

Results and Discussion. The results of the study of the soil water extract with a ratio of 1:5 is presented in Tab. 2. The ZTN-34 observation point recorded the maximum value of $EC_{1:5}$ in the soil horizons 0–10 *cm* (4.300 *dS/m*) and 10–30 *cm* (2.748 *dS/m*), while the SO-44 observation point recorded the maximum value in the horizons 30–60 *cm* (2.309 *dS/m*) and 60–100 *cm* (2.346 *dS/m*). The minimum value of $EC_{1:5}$ in the 0–10 *cm* soil horizon was observed at SO-72 observation point (0.155 *dS/m*), at 10–30 *cm* horizon at SO-55 observation point (0.164 *dS/m*), at 30–60 *cm* horizon at SO-68 at the observation point (0.146 *dS/m*), and at the 60–100 *cm* horizon at the VDN-32 observation point (0.150 *dS/m*). The mean values of $EC_{1:5}$ in the investigated soil horizons declined with depth up to 60 *cm*, as shown in Fig. 2, and then a small rise in the mean value of $EC_{1:5}$ was noticed. Accordingly, the depth range between 30–60 *cm* had the lowest mean value of $EC_{1:5}$ (0.381 *dS/m*) and the depth range of 0–10 *cm* had the greatest value (0.556 *dS/m*). The quantity of precipitation, the level and chemical profile of the groundwater used for irrigation, along with the soil's texture, can all lead to similar variations in the value of $EC_{1:5}$ in the soil horizon [34].

The salinization and desalination processes took varied forms depending on which of these processes was more prevalent. For instance, even though the groundwater in ESN-03 and EGT-17 observation points had no very high level (4.5–6.0 *m*), at the end of the irrigation season, there was a noticeable buildup of soluble salts in the upper horizons of these points, because of the extensive evaporation and the usage of irrigation water that is generally of low quality [35] and concurrently, no accumulation of salts was observed in the corresponding deep horizon sites. At the VDN-04 observation point (2.5–3.0 *m*), on the other hand, capillary pressures caused the relatively high salinity groundwater to rise to the upper soil horizons, which resulted in the buildup of soluble salts.

Table 2

$EC_{1:5}$ values of the water extract of the investigated soil samples

Observation points	Depth, *cm*	$EC_{1:5}$, *dS/m*	Observation points	Depth, *cm*	$EC_{1:5}$, *dS/m*	Observation points	Depth, *cm*	$EC_{1:5}$, *dS/m*
MEV-01	0–10	0.653	JAN-31	0–10	0.174	SO-53	0–10	0.213
	10–30	0.451		10–30	0.166		10–30	0.210
	30–60	0.392		30–60	0.148		30–60	0.186
	60–100	0.514	VDN-32	0–10	0.184		60–100	0.190
NPT-02	0–10	1.438		10–30	0.201	SO-54	0–10	0.374
	10–30	1.124		30–60	0.171		10–30	0.471
	30–60	0.941		60–100	0.150	SO-55	0–10	0.163
	60–100	0.656	ESN-33	0–10	0.594		10–30	0.164
ESN-03	0–10	4.168		10–30	0.633	SO-56	0–10	0.171
	10–30	1.050		30–60	0.484		10–30	0.187
	30–60	0.267		60–100	0.399	SO-57	0–10	0.224
	60–100	0.290	ZTN-34	0–10	4.300		10–30	0.214
VDN-04	0–10	0.743		10–30	2.748		30–60	0.197
	10–30	0.668		30–60	0.497		60–100	0.204
	30–60	0.547		60–100	0.557	SO-58	0–10	1.643
	60–100	0.503	MSY-35	0–10	1.661		10–30	1.463
MAG-05	0–10	0.230		10–30	0.794		30–60	0.628
	10–30	0.208	SDP-36	0–10	0.239		60–100	0.383
	30–60	0.220		10–30	0.194	SO-60	0–10	0.216
	60–100	0.214		30–45	0.186		10–30	0.227
AZP-06	0–10	0.415	ART-37	0–10	2.076		30–60	0.215
	10–30	0.360		10–30	1.741		60–100	0.224
	30–60	0.371		30–60	1.586	SO-62	0–10	0.175
	60–100	0.437		60–100	1.300		10–30	0.170
AVD-07	0–10	0.376	LUK-38	0–10	0.243		30–50	0.163
	10–30	0.427		10–30	0.223	SO–63	0–10	0.197
	30–60	0.306		30–60	0.224		10–30	0.211
	60–100	0.243		60–100	0.220		30–50	0.176
PTV-08	0–10	0.213	SO-39	0–10	0.284	SO–64	0–10	0.356
	10–30	0.197		10–30	0.241		10–30	0.360
	30–60	0.168		30–45	0.192		30–50	0.304
	60–100	0.152	SO-40	0–10	0.227	SO-65	0–10	0.191
JAN-09	0–10	0.237		10–30	0.223		10–30	0.180
	10–30	0.229		30–40	0.218		30–60	0.175
	30–60	0.242	SO-41	0–10	0.227		60–100	0.152
	60–100	0.270		10–30	0.224	SO-67	0–10	0.223
TUT-11	0–10	0.275		30–60	0.200		10–30	0.179
	10–30	0.239		60–100	0.177		30–60	0.158
	30–60	0.239	SO-42	0–10	0.983		60–100	0.154
	60–100	0.205		10–30	0.745	SO-68	0–10	0.177
HKV-13	0–10	0.490		30–60	0.357		10–30	0.175
	10–30	0.452	SO-43	0–10	0.241		30–60	0.146
MGT-15	0–10	0.485		10–30	0.224		60–100	0.159
	10–30	0.308		30–50	0.207	SO-69	0–10	0.194
	30–60	0.292	SO-44	0–10	0.198		10–30	0.192
	60–100	0.210		10–30	0.199		30–60	0.271

ARK-16	0–10	0.284		30–60	2.309		60–100	0.385
	10–30	0.283		60–100	2.346	SO-71	0–10	0.411
	30–60	0.255	SO-45	0–10	0.225		10–30	0.197
	60–100	0.270		10–30	0.216		30–60	0.201
EGT-17	0–10	1.341		30–60	0.232		60–75	0.175
	10–30	1.192		60–100	0.409	SO-72	0–10	0.155
	30–60	0.607	SO-46	0–10	0.212		10–30	0.177
	60–100	0.547		10–30	0.228	SO-73	0–10	0.203
ART-19	0–10	0.914	SO-47	0–10	0.207		10–30	0.231
	10–30	0.657		10–30	0.166		30–60	0.217
	30–60	0.302		30–45	0.170		60–100	0.184
	60–100	0.226	HSH-48	0–10	0.526	AMV-74	0–10	0.966
HAC-20	0–10	0.218		10–30	0.252		10–30	0.769
	10–30	0.209		30–50	0.232	AMV-75	0–10	0.386
	30–60	0.198	NBD-49	0–10	0.185		10–30	0.375
	60–80	0.194		10–30	0.182	SO-76	0–10	0.187
MNK-21	0–10	0.206		30–60	0.213		10–30	0.184
	10–30	0.184		60–100	0.200		30–50	0.171
	30–50	0.209	SO-50	0–10	0.206	SO-77	0–10	0.209
TLV-23	0–10	1.023		10–30	0.200		10–30	0.212
	10–30	1.410		30–60	2.265		30–60	0.200
	30–50	0.717		60–100	2.248		60–100	0.231
VAN-24	0–10	0.217	SHV-51	0–10	0.298	SO-78	0–10	0.653
	10–30	0.195		10–30	0.256		10–30	0.756
	30–50	0.208		30–60	0.223		30–60	0.540
URN-25	0–10	0.193		60–100	0.249		60–70	0.393
	10–30	0.192	SO-52	0–10	0.238	SO-79	0–10	0.814
	30–40	0.171		10–30	0.234		10–30	0.724
ALK-28	0–10	0.333		30–50	0.240			
	10–30	0.334						

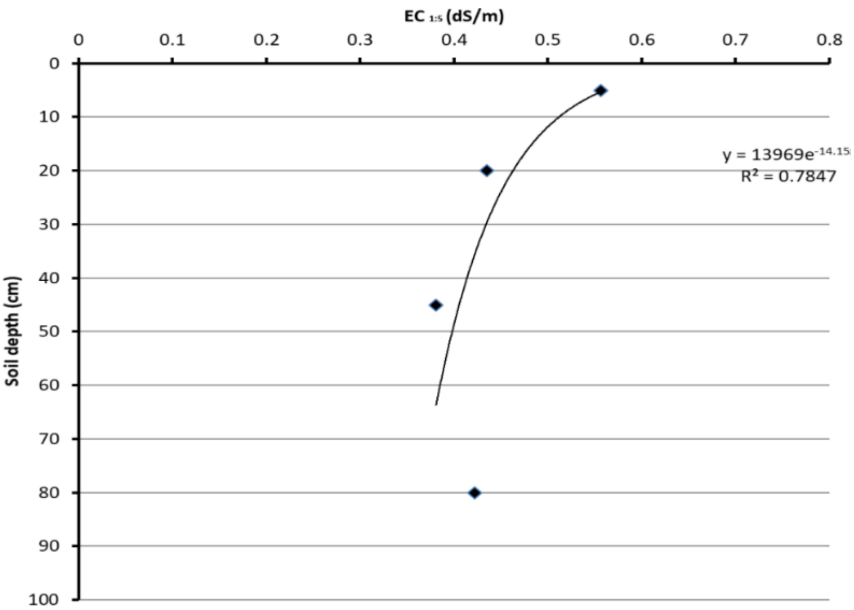

Fig. 2. Mean values of $EC_{1:5}$ in the studied soil layers.

In a different instance, because of the low groundwater level and the use of relatively good quality irrigation water [35], comparatively low salt content was found in the samples examined at the MNK-21 observation site (all of the samples fell into the non-saline category).

To provide a more precise understanding of the fluctuations of the salinization process, soil salinity was also assessed (Tab. 3). The study's findings demonstrated that, of the soil samples collected from depth ranges of 0–10 *cm*, 10–30 *cm*, 30–60 *cm*, and 60–100 *cm*, respectively, 54.8%, 62.2%, 65.6%, and 60.8% belonged to non-saline, 19.6%, 15.1%, 18.1%, and 23.6% to slightly saline, and 15.1%, 12.1%, 10.9%, and 7.8% to moderately saline, 7.5%, 9.1%, 1.8%, and 2.6% to highly saline, and 3.0%, 1.5%, 3.6%, and 5.2% to extremely saline categories.

Table 3

Salinity categories of the soil samples

Observation points	Dept *h*, *cm*	Degree of salinity	Observation points	Dept *h*, *cm*	Degree of salinity	Observation points	Dept *h*, *cm*	Degree of salinity
MEV-01	0–10	moderate	JAN-31	0–10	non	SO-53	0–10	non
	10–30	slight		10–30	non		10–30	non
	30–60	slight		30–60	non		30–60	non
	60–100	slight	VDN-32	0–10	non		60–100	non
NPT-02	0–10	high		10–30	non	SO-54	0–10	slight
	10–30	high		30–60	non		10–30	slight
	30–60	moderate		60–100	non	SO-55	0–10	non
	60–100	moderate	ESN-33	0–10	moderate		10–30	non
ESN-03	0–10	extreme		10–30	moderate	SO-56	0–10	non
	10–30	high		30–60	slight		10–30	non
	30–60	non		60–100	slight	SO-57	0–10	non
	60–100	slight	ZTN-34	0–10	extreme		10–30	non
VDN-04	0–10	moderate		10–30	extreme		30–60	non
	10–30	moderate		30–60	slight		60–100	non
	30–60	moderate		60–100	moderate	SO-58	0–10	high
	60–100	slight	MSY-35	0–10	high		10–30	high
MAG-05	0–10	non		10–30	moderate		30–60	moderate
	10–30	non	SDP-36	0–10	non		60–100	slight
	30–60	non		10–30	non	SO-60	0–10	non
	60–100	non		30–45	non		10–30	non
AZP-06	0–10	slight	ART-37	0–10	high		30–60	non
	10–30	slight		10–30	high		60–100	non
	30–60	slight		30–60	high	SO-62	0–10	non
	60–100	slight		60–100	high		10–30	non
AVD-07	0–10	slight	LUK-38	0–10	non		30–50	non
	10–30	slight		10–30	non	SO-63	0–10	non
	30–60	slight		30–60	non		10–30	non
	60–100	non		60–100	non		30–50	non
PTV-08	0–10	non	SO-39	0–10	slight	SO-64	0–10	slight
	10–30	non		10–30	non		10–30	slight
	30–60	non		30–45	non		30–50	slight
	60–100	non	SO-40	0–10	non	SO-65	0–10	non
JAN-09	0–10	non		10–30	non		10–30	non
	10–30	non		30–40	non		30–60	non
	30–60	non	SO-41	0–10	non		60–100	non
	60–100	non		10–30	non	SO-67	0–10	non

TUT-11	0–10	slight		30–60	non		10–30	non
	10–30	non		60–100	non		30–60	non
	30–60	non	SO-42	0–10	moderate		60–100	non
	60–100	non		10–30	moderate	SO-68	0–10	non
HKV-13	0–10	slight		30–60	slight		10–30	non
	10–30	slight	SO-43	0–10	non		30–60	non
MGT-15	0–10	slight		10–30	non		60–100	non
	10–30	slight		30–50	non	SO-69	0–10	non
	30–60	slight	S0-44	0–10	non		10–30	non
	60–100	non		10–30	non		30–60	slight
ARK-16	0–10	slight		30–60	extreme		60–100	slight
	10–30	slight		60–100	extreme	SO-71	0–10	slight
	30–60	non	SO-45	0–10	non		10–30	non
	60–100	non		10–30	non		30–60	non
EGT-17	0–10	high		30–60	non		60–75	non
	10–30	high		60–100	slight	SO-72	0–10	non
	30–60	moderate	SO-46	0–10	non		10–30	non
	60–100	moderate		10–30	non	SO-73	0–10	non
ART-19	0–10	moderate	SO-47	0–10	non		10–30	non
	10–30	moderate		10–30	non		30–60	non
	30–60	slight		30–45	non		60–100	non
	60–100	non	HSH-48	0–10	moderate	AMV-74	0–10	moderate
HAC-20	0–10	non		10–30	non		10–30	moderate
	10–30	non		30–50	non	AMV-75	0–10	slight
	30–60	non	NBD-49	0–10	non		10–30	slight
	60–80	non		10–30	non	SO-76	0–10	non
MNK-21	0–10	non		30–60	non		10–30	non
	10–30	non		60–100	non		30–50	non
	30–50	non	SO-50	0–10	non	SO-77	0–10	non
TLV-23	0–10	moderate		10–30	non		10–30	non
	10–30	high		30–60	extreme		30–60	non
	30–50	moderate		60–100	extreme		60–100	non
VAN-24	0–10	non	SHV-51	0–10	slight	SO-78	0–10	moderate
	10–30	non		10–30	non		10–30	moderate
	30–50	non		30–60	non		30–60	moderate
URN-25	0–10	non		60–100	non		60–70	slight
	10–30	non	SO-52	0–10	non	SO-79	0–10	moderate
	30–40	non		10–30	non		10–30	moderate
ALK-28	0–10	slight		30–50	non			
	10–30	slight						

It should be mentioned that similar outcomes were also observed in the Etchmiadzin and Masis Regions, which share hydrological and climatic characteristics with the Armavir and the lowlands of Baghramyan Regions [6, 31, 32, 34].

Soil salinity is the limiting factor in crop yield in arid and semi-arid areas. The primary problem impeding agricultural development in many parts of the world is salinity in the soil [36]. Barley is among the many crops, whose production potential can be irreversibly lost due to salt stress at any point in the crop's development cycle [37, 38]. Two cultivars of common beans (*Phaseolus vulgaris*) with varying salinity sensitivity-Montalban*,* which is sensitive, and I-193, which is moderately sensitive were examined for their reactions. Salinity significantly reduced the biomass of the roots in Montalban, but it also produced a drop in the biomass of the shoots and the leaf area across both genotypes [39]. Salinity stress caused a marked reduction in dry matter gain in roots and shoots, and transpiration rate of salt-tolerant (*cv. Sakha93*) and salt-sensitive cultivars (*cv. Gemmeza10*) wheat (*Triticum aesativum* L.) and salt-tolerant (*cv. Sakha1*) and salt-sensitive cultivars (*cv. Giza716*) broad bean (*Vicia faba* L.) [40]. According to certain research [41–43], shoot and root growth suppression is a common reaction to salinity and one of the most significant agricultural markers of salt stress tolerance is plant growth. In this regard, Murillo-Amador et al. [44] discovered that biomass declined with increasing salinity and more sharply at 170 *mM* NaCl in all cowpea genotype groups. In the test plants, every fraction of photosynthetic pigment gradually declined as the salinity increased [40]. This is consistent with the findings of Tuna et al. [43], who reported that the salt stress caused a decrease in the amounts of chlorophyll *a* and *b* in maize plants. With increasing NaCl concentrations, two cultivars of cucumber (Jinchun No. 2 and Zaoduojia) showed a drop in shoot and root dry weights, plant height, stem diameter, leaf area, and leaf number [45].

Based on our research's findings and an analysis of the dynamics of the degree of salinity in various soil horizons, it can be concluded that there was a significant buildup of readily soluble salts in the upper soil horizons (0–10 *cm* and 10–30 *cm*) and a minor buildup in the middle horizon (30–60 *cm*).

This process is slightly enhanced in the deep horizon (60–100 *cm*), which may be related to the soil's structure and groundwater level. Recall that a comparable buildup of salt in the upper layers of the soil can result in a reduction in agricultural crop output, a downturn in soil biological activity, and ultimately, soil degradation.

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Գ. Հ. ՄԱՐԳԱՐՅԱՆ

ՀՈՂԵՐԻ ԱՂԱԿԱԼՈՒՄԸ ԱՐՄԱՎԻՐԻ ԵՎ ԲԱՂՐԱՄՅԱՆԻ ՏԱՐԱԾԱՇՐՋԱՆՆԵՐԻ ԳՅՈՒՂԱՏՆՏԵՍԱԿԱՆ ՏԱՐԱԾՔՆԵՐՈՒՄ

Գնահատվել է Արմավիրի և Բաղրամյանի տարածաշրջանների գյուղատնտեսական նշանակության հողատարածքների աղակալվածության աստիճանը: Նմուշառումն իրականացվել է ոռոգման սեզոնի ավարտին (հոկտեմբեր)՝ 2023թ., 66 գյուղատնտեսական նշանակության հողատարածքներից, որոնք գրեթե հավասարաչափ բաշխված են Արմավիրի և Բաղրամյանի տարածաշրջաններում: Աղակալվածության աստիճանը որոշելու համար գնահատվել է նմուշների էլեկտրահաղորդականությունը՝ որպես հիմնական ցուցանիշ: Հետազոտության արդյունքները ցույց են տվել, որ հողի վերին հորիզոններում նկատվել է լուծվող աղերի զգալի կուտակում, ինչը կարող է նվազեցնել հողի արտադրողականությունը: Հաշվի առնելով այս հանգամանքը, շատ կարևոր է տարածաշրջանի հողերի շարունակական մոնիթորինգը և կայուն կառավարումը:

Г. Г. МАРГАРЯН

ЗАСОЛЕНИЕ ПОЧВ НА СЕЛЬСКОХОЗЯЙСТВЕННЫХ УГОДИЯХ АРМАВИРСКОГО И БАГРАМЯНСКОГО РАЙОНОВ

Оценена степень засоления сельскохозяйственных угодий Армавирского и Баграмянского районов. Образцы почв были собраны в конце поливного сезона (октябрь) 2023 года с 66 сельскохозяйственных угодий, практически равномерно распределенных в Армавирском и Баграмянском районах. Для определения степени засоления в качестве основного показателя была измерена электропроводность образцов. Результаты исследования показывают, что в верхних горизонтах почвы наблюдалось заметное накопление растворимых солей, что при некоторых обстоятельствах потенциально снижало продуктивность почвы. Все это свидетельствует, очень важен постоянный мониторинг и устойчивое управление почвами региона.