Рисунок 1 – Поврежденность растений лука репчатого луковым минером

Рисунок 2 – Поврежденность растений лука репчатого табачным трипсом

Закключение. В результате установлено, что в луковом агроценозе насчитывается 15 видов вредителей: 2 из них можно считать случайными, 8 вредят периодически, а 5 наносят постоянный вред луку репчатому. К постоянным вредителям относятся луковая минирующая муха, луковая муха, табачный трипс, луковый листоед, стеблевая нематода лука. При этом в течение 2008-2017 гг. доминируют два вида - луковая минирующая муха и табачный трипс.

1. Белик В.Ф. Методика опытного дела в овощеводстве и бахчеводстве. – М.: агропромиздат, 1992.- 279 с.
2. Исаев С.И. Краткие указания по учету вредителей лилейных овощных культур в Алтайском крае // Труды Алтайского сельскохозяйственного института. Барнаул - Алт. краевое изд-во, Барнаул, 1948. – Вып.1 – С.149-167.
3. Методика выявления сельскохозяйственных вредителей и сигнализация сроков борьбы с ними // М. Россельхозиздат, 1964. - 177 с.

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Salinization reasons of the kur–araz lowland soils

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Abstract

The article deals with the impact factors on salinization and solonetzicity of the Garabagh plain soils in the Kur-Araz lowland which is a main farming zone in Azerbaijan. The long researches showed that a reason for the salinization and solonetzicity of the soils was nearness of the subsoil waters the surface besides the antropoghenic factors impact, performing irrigations more than a norm corresponding to the plants need as a result of intensive irrigations, that's why the productivity obtained from the agricultural plants relatively reduced. The agromeliorative measures realization is considered expedient in the same soils for this problem prevention.

Key words: salinization, salty, subsoil waters, productivity

The Kur-Araz lowland soils possessing a good climate condition exposed to salinization and solonetzicity to a different degree. A main reason of this is very nearness of the subsoil waters having mineralization to a high degree to the land surface and salinity of soils spreaded in the zone.Improvement of the soil and pasture usage, definition of the

salinized, solonchetsified and degraded soils, increase of the soils fertility besides the other measures in connection with the soil in “State Program about a reliable provision of the population with the food products in the Azerbaijan Republic in 2005-2015 ” were intended by the President I.Aliyev and the works in this direction are realizing [6]. It is known from the investigations that the soils salinization and solonchicity, erodibility exert its negative influence on the same soils fertility in some regions and farming zones. At present study of the salinization and solonchicity reasons in the Garabagh plain soils possesses a vital importance.

Research object and method

The farmer economy soils in the Salmanbayli village of the Aghjabadi district from the Garabagh plain have been taken as a research object. The experimental area was selected in the zone with 2,4 hectares, the samples were taken from the soil sections in the characteristic places (depth-2,0m). The chemical analyses were performed with a large method in the Republic [1].

Analysis and discussion

Beginning from 90th years in Azerbaijan the agrarian policy was a reason for substantial progress in agriculture and the human's regard for soil changed. But lately the ecological environment disorder caused decrease of the soils good for agriculture. The soils in the Kur-Araz lowland is fertile and good for cultivation and agriculture is a main part of economy [1]. Here grain-growing, cotton-growing, viticulture, fruit-growing, sericulture and cattle-breeding developed very much. The intensive irrigations created a condition for the salinization and solonchicity of the lowland soils. Some researchers— S.Turemnov, S.Zakharov, V.Volobuyev, E.Salayev, G.Mammadov, M. Babayev and others performed large-scale researches in the lowland. V.R.Volobuyev defined geographic expanding legitimacies of salts and genetic forms in the soil [8]. Then N. Mikayilov performed researches in the direction of the soils geoecological salinization and their amelioration in the Kur-Araz lowland.

The Garabagh plain soils in the lowland are mainly used under the agricultural plants. The Garabagh plain surrounds 324,7 thousand hectares of the zone and its soils were investigated by some researchers in different years. (M.P.Babayev, G.Sh.Mammadov, G.Z.Azizov). A consequence of the long investigations shows that because of incorrect fulfillment of the agrotechnical and agromeliorative measures in the soils used under the agricultural plants in the Garabagh plain the salinization, solonchicity and other processes caused their water-physical characters deterioration [7]. This was a reason for mineral nutrition and metabolism deterioration in the cultural plants, consequently the agricultural plants productivity reduced [4]. The grey soils are considered zonal type corresponding to the climatic condition in the Garabagh plain. The grey –brown (chestnut) soils are mainly superior in the north and northern –half part of the plain, but the grey –meadow soils are superior in the southern –half part of the plain. The grey-brown (chestnut) soils are situated at altitude above sea-level in comparison with all other soils of the plain. Here the solonchets sorts of the grey-meadow soils spread. There are sodium-sulphate solonchets soils in the plain, the same soils tighten, cracks are created on the surface and leak water badly. The soil exposed to salinization in the artificial non-drained areas of the Garabagh irrigated zone. One of the principal reasons in soils salinization is nearness of the subsoil waters possessing high mineralization to the land surface [3]. The subsoil water level in the plain is different depending on irrigation method and rivers flood. The mineralization degree of the subsoil waters is various and it is mainly calcareous, sodium- calcareous and sulphate. The calcareous subsoil waters are found in the southeastern part [5]. The soils water-penetrating ability of the plain is low ($k=1-2$ m/day). The subsoil waters level is 2,6-2,9 m and mineralization degree is (2-6g/l) low.

The researches have been performed in the irrigated bright grey-meadow soils belonging to the municipality of Salmanbayli village which is situated in the south-west part of Aghjabadi. The area soils were used under grain plant during the researches. These soils are more weakly provided with humus than other subtypes and the same soils are in the relatively higher place of the plot. The granulometric structure, salts quantity (in the total water weight analysis), pH, absorbed bases and etc. In the soil were studied with the purpose of the investigation of modern state in the experimental area soils. It was determined that a

totality of the absorbed bases was 25,80-30,14mg.ekv.in the experimental area soils. A value of pH vibrated by 7,7-8,4 in these sections.

Table 1

*Chemical analysis consequences of bright grey-meadow soils
(by percentage in the absolute dry soil)*

Section №	Stratums, by /sm	Hygroscopic humidity, %	Humus, %	Total nitrogen, %	pH	CO ₂ , %	CaCO ₃ according to CO ₂
Gleyey, weak solonetzificated briht grey –meadow soils							
1	0-22	5.83	1.96	0.186	7,7	3.59	8.39
	22-59	6.37	1.86	0.103	7,8	2.96	6.73
	59-91	5.40	1.44	0.006	8,0	3.85	8.75
	91-137	2.83	0.65	0.003	8,1	3.66	8.32
Heavy loamy, mean solonetzificated grey-meadow soils							
2	0-27	5.88	0.85	0.096	7,9	2.55	5.80
	27-65	4.92	0.56	0.060	8,1	4.18	9.50
	65-97	5.22	0.34	0.003	8,3	3.77	8.57
	97-142	4.55	0.19	-"	8,4	4.07	9.25

It is seen from the table that the hygroscopic humidity has different value on the genetic layers depending on soil granulometric structure. The humus quantity gradually gets reduced from upper layer towards low stratums over genetic layers. The gradual decrease of humus towards low layers can be explained by irrigation of these soils for a long time and gradual change of the genetic stratums. We can say according to the chemical analysis consequences that the humus quantity changes by 0,85-1,96% on the tillage layer. The total nitrogen number changes by 0,096-0,186% on the tillage layer, but by 0,060-0,103% under tillage layer depending on humus quantity.

But calcareous is 5,80-8,39% on the tillage stratum of the same soils. The salts number was defined in the soils of the experimental area and it was determined that the soils in the experimental area are not salinized, weak, mean and strong salinized. As is seen from table 2 the salts quantity(for the dry residue) in the soils of the experimental area is 0,170-1,033%. As is seen CO₃ ion isn't observed, a quantity of

Table 2

Salts change in soils of the experimental area

Section, №	Dept, cm	CO ₃	NaCO ₃	Cl	CO ₄	Ca	Mg	Na+k(for difference)	Salt totality, %	Dry residue, %
mg.ekv/ %										
K-2	0-25	no	<u>0,31</u> 0,019	<u>0,40</u> 0,014	<u>11,15</u> 0,535	<u>10,15</u> 0,203	<u>0,58</u> 0,007	<u>1,13</u> 0,026	0,790	0,794
	25-50	-	<u>0,25</u> 0,015	<u>0,26</u> 0,009	<u>14,85</u> 0,713	<u>12,40</u> 0,248	<u>1,83</u> 0,022	<u>1,13</u> 0,026	1,033	1,075
	50-75	-	<u>0,23</u> 0,014	<u>0,29</u> 0,010	<u>14,93</u> 0,717	<u>12,25</u> 0,245	<u>2,67</u> 0,032	<u>0,53</u> 0,012	1,030	1,052
	75-100	-	<u>0,30</u> 0,018	<u>0,34</u> 0,012	<u>13,72</u> 0,659	<u>10,05</u> 0,201	<u>2,25</u> 0,027	<u>2,06</u> 0,047	0,964	0,978
K-4	0-25	no	<u>0,33</u> 0,020	<u>0,77</u> 0,027	<u>8,86</u> 0,426	<u>3,75</u> 0,075	<u>1,92</u> 0,023	<u>4,29</u> 0,098	0,676	0,696
	25-50	-	<u>0,34</u> 0,021	<u>0,66</u> 0,023	<u>6,45</u> 0,310	<u>1,60</u> 0,032	<u>1,50</u> 0,016	<u>4,35</u> 0,100	0,504	0,524
	50-75	-	<u>0,46</u> 0,028	<u>0,63</u> 0,022	<u>5,62</u> 0,270	<u>0,90</u> 0,018	<u>1,17</u> 0,014	<u>4,64</u> 0,106	0,458	0,466

	75-100	-	<u>0,39</u> 0,024	<u>0,66</u> 0,023	<u>7,10</u> 0,341	<u>2,65</u> 0,053	<u>0,67</u> 0,008	<u>4,83</u> 0,111	0,560	0,573
K-6	0-25	no	<u>0,64</u> 0,039	<u>0,29</u> 0,010	<u>2,17</u> 0,104	<u>1,15</u> 0,023	<u>1,42</u> 0,017	<u>0,53</u> 0,012	0,205	0,211
	25-50	-	<u>0,52</u> 0,032	<u>0,17</u> 0,006	<u>2,27</u> 0,109	<u>0,90</u> 0,018	<u>1,33</u> 0,016	<u>0,73</u> 0,017	0,198	0,203
	50-75	-	<u>0,46</u> 0,029	<u>0,14</u> 0,005	<u>1,92</u> 0,092	<u>1,00</u> 0,020	<u>1,00</u> 0,012	<u>0,052</u> 0,012	0,170	0,177
	75-100	-	<u>0,41</u> 0,025	<u>0,26</u> 0,009	<u>2,02</u> 0,097	<u>1,25</u> 0,025	<u>0,67</u> 0,008	<u>0,77</u> 0,018	0,182	0,190

HCO₃ ion is 0,014-0,032%, Cl-0,005-0,027%, SO₄-0,009-0,714% in anion structure of salts. But in cation structure Ca changed by 0,018-0,248%, Mg-0,007-0,032%, Na+K-0,012-0,111%.

Conclusion

It was determined that the soils in the experimental area are unsalinized, weak, m 7,7-8,4 m along profile in the same soils. It is expedient to fulfill complex aqromeliorative measure in order to get high productivity from the soils in the experimental area.

1. Arinushkina E.V. Leadership on soil chemical analysis M., pub. MSU. 1970.p.488.
2. Azizov G.Z. Water salt balance of ameliorated ground in the Kur-Araz lowland and its consequence scientific analysis. Baku, Elm(Science), 2006. p.260..
3. Babayev M.P. Irrigated soils of the Kur-Araz lowland and their productive ability. Pub.Elm, 1984.p.172.
4. Jalilova L.Z. Study of soils in the Ucar experimental station and salt quantity and their structure in the subsoil waters. International Conference/Ecology: nature and society problem. Dedicated to 100 th anniversary of the academician Hasan Aliyev. Baku, Elm, 2007.p.85-86.
5. Israfilov G.Y. Subsoil waters in the Kur-Araz lowland. Baku, pub. "Maarif", 1975.p.204.
6. Mammadov G.Sh. H.Aliyev's policy in Azerbaijan. Baku, Elm (Science), 2013, p. 223-243.
7. Mustafayev M.G. Efficiency of the ameliorative measures and their evaluation. // "Ecological state of the natural environment and scientific –practical aspects of the modern meliorative technologies"Inter. Sci.-pract.conf. pub. "RAGU" Riazan, 2012.p.187-190.
8. Volobuyev V.R. Genetic forms of soil salinity in the Kur-Araz lowland. Pub. AS. Azerv.SSR. Baku,1965.p.247.