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Turfgrass Quality Changes from Season to Season on Perennial Ryegrass (*lolium perenne l.*) Genotypes Collected from Natural Flora

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***Abstract*—**Perennial ryegrass (*Lolium perenne* L.) plants are cultivated for lawn constitution and as forage plants. Considerable number of perennial ryegrass genotypes are present in the flora of our country and they present substantial was performed based on a Project supported bu TUBITAK (Project numver : 106O159) and perannial ryegrass genotypes from 8 provinces were collected during 2006. Seeds of perennial ryegrass were collected from 48 different locations. Populations of turfgrass seeds in flowerpots to be 20 and 1 cm deep greenhouse were sown in three replications at 07.07.2007.Then the growth of turfgrass seedlings in the greenhouse in pots showed sufficiently separated from the plants were planted in each population. Plants planted in the garden of the observation scale of 1-9 was evaluated by the quality, 1 = the weakest / worst, 6 = acceptable and 9 = superior or considered as an ideal. Essentially only recognized in assessing the quality of the color of grass, but the color, density, uniformity, texture (texture), illness or environmental stresses are evaluated as a combination reaction. Turfgrass quality 15.11.2007, 19.03.2008, 27.05.2008, 27.11.2008, 07.03.2009 and 02.06.2009 have been 6 times to be in order. Observations made regarding the quality of grass; 3 years according to seasonal environments turf quality genotypes belonging to 14 different populations were found to be 7.5 and above are reserved for future use in breeding works.The number of genotypes belonging to 41 populations in terms of turfgrass quality was determined as 7.9 of 3 year average seasonal. Argıthan between Doğanhisar (Konya) is located 38.09 latitude and 31.40 longitude, altitude 1158 m in the set that population numbered 41.

***Keywords*—**Genotype, Perennial ryegrass, Turfgrass quality

I. INTRODUCTION

PEREANNIAL grass (*Lolium perene* L.) is the most used species in architecting landscape that is a native plant of Asia's temperate zone and North Africa [1,2]. It is generally acceptable as short-lived pereannial forage crop [3]. Although Turkey' s natural flora possesses substantially pereannial grass (*Lolium perenne* L.) genotypes and has a great potantial of breeding, studies with this plant are pretty poor. Because the studies with this subject are scarce, applications are generally made by utilizing studies of America or Europa countries which are in minimum 20 latitudes after our country [4]. Native genotypes face of extinction due to overgrazing, using herbicides commonly, farming in meadow and pasture or converting them to settlement. Foreign origin commercial grass varieties are generally getting short-lived account for not being adapted in our country's conditions.

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Collecting studies of pereannial grass genotypes' were made in 2006 in 8 cities (Afyon, Aksaray, Ankara, Antalya, Eskişehir, Karaman, Konya ve Mersin) through TUBİTAK-106O 159 project in order to get pereannial grass genotypes in our natural flora and use superior genotypes in respect to feature of being grass and forage plant. This study was determined by effect of seasonal variation on the populations' grass quality which were collected from 8 cities and 48 different locations.

II. MATERIAL AND METHODS

Pereannial grass plants were gathered from Ankara(6), Eskişehir(5), Afyon(2), Konya(39), Aksaray(1), Karaman(3), Mersin(2) and Antalya(1) cities and totally 59 locations in 2006. Seeds were collected from 53 locations and green plants with root were from 6 locations. Locations collected from a variety of reasons, some populations (death or self destruction) remained excluded from the evaluation. 48 different populations assessed in this study.

Number of sample was taken from every location were determined by population's change. Plants were gathered with representing target area. For determining of optimum plant number from the population, some important ecological factors such as soil structure, soil slope and view, water regime and relation between flora and these subjects will be taken account [5]. Plants were selected in respect of some phenotypic views such as plant's outlook (perpendicular, recumbent, semi-recumbent), colour, leaf structure, lenght and differef types were collected as possible as.

Perennial grass collected as seed in figure 1 shows spike shapes. Given the numbers of plants collected, the collection was recorded on a regular basis information on the place. Standing in flowerpots in greenhouses, where plants are collected and propagated quickly.

Research, Selcuk University Faculty of Agriculture was conducted in the trial fields irrigated conditions. Altitude of trial fields is 1130 meters. Trial location, based on 0-30 cm soil depth in a Position of the Bank has taken clay-loam, poor in organic matter (1.23%), which is high in lime content (32%), slightly alkaline soils (pH: 7.8) present in reaction is no salinity problem.

Quality was evaluated by 1-9 scale, 1 = the weakest / worst, 6 = acceptable and 9 = superior or considered as an ideal. Essentially only recognized in assessing the quality of the color of turfgrass, but the color, density, uniformity, texture (texture), illness or environmental stresses are evaluated as a combination reaction. Turf quality 15.11.2007, 19.03.2008, 27.05.2008, 27.11.2008, 07.03.2009 and 02.06.2009 have been 6 times to be in order.

TABLE I
POPULATIONS IN PERENNIAL RYEGRASS QUALITY (1= THE WEAKEST / WORST, 6 = ACCEPTABLE, 9= EXCELLENT / IDEAL), THE ACERAGE VALUES OF THE F TEST AND LSD VALUE

Population Number	*Autumn (15.11.2007)*	*Winter (19.03.08)*	*Spring (27.05.08)*	*Autumn (27.11.08)*	*Winter (07.03.09)*	*Spring (02.06.09)*	*Average*
1	7.5	7.1	7.1	6.5	6.4	7.2	**7.0**
2	7.5	7.8	7.3	6.0	6.4	7.2	**7.0**
3	7.4	8.3	6.4	7.5	7.6	7.6	**7.5**
4	7.1	7.5	6.9	7.3	6.9	6.7	**7.0**
7	7.2	7.5	7.6	7.3	7.0	7.3	**7.3**
8	7.8	7.6	7.2	7.7	6.9	7.1	**7.4**
10	7.9	8.3	7.7	7.3	7.1	8.1	**7.7**
11	6.2	7.7	6.6	6.1	6.3	7.6	**6.8**
12	7.3	8.2	7.8	6.8	7.3	8.1	**7.6**
14	7.7	7.7	7.3	7.1	6.9	7.0	**7.3**
15	6.9	7.8	6.6	6.5	6.4	7.4	**6.9**
16	7.0	7.7	5.8	7.0	5.3	6.9	**6.6**
17	7.7	7.9	7.4	7.4	7.0	6.7	**7.4**
18	6.8	8.0	5.7	6.5	5.7	7.8	**6.8**
19	6.6	7.4	7.5	6.1	7.3	7.5	**7.1**
20	7.6	7.7	7.0	7.4	7.1	7.2	**7.3**
21	6.3	7.2	6.3	6.1	5.9	6.9	**6.5**
22	7.1	7.5	6.4	6.7	6.5	7.0	**6.9**
24	6.4	7.9	7.0	6.1	7.2	7.5	**7.0**
25	7.6	7.7	6.8	7.2	7.3	7.7	**7.4**
26	6.7	8.1	6.6	6.4	6.5	7.9	**7.0**
28	7.5	8.0	7.5	7.5	7.4	8.1	**7.7**
29	7.5	7.6	6.3	6.8	6.0	7.5	**7.0**
30	7.6	7.7	6.7	7.4	6.7	7.1	**7.2**
31	7.2	7.8	6.6	7.1	6.3	7.3	**7.0**
32	7.5	8.9	7.0	7.3	7.2	8.6	**7.7**
35	6.7	7.9	7.3	6.4	7.3	7.6	**7.2**
36	7.4	8.3	7.0	7.1	7.3	8.0	**7.5**
37	7.5	7.3	6.3	7.2	6.2	7.4	**7.0**
38	8.2	7.4	7.9	8.1	7.2	6.9	**7.6**
39	6.5	7.4	7.0	6.3	7.0	7.5	**7.0**

41	8.4	8.4	7.5	7.5	7.3	8.2	**7.9**
42	5.8	8.2	6.8	5.5	6.5	8.1	**6.8**
43	6.6	7.0	6.5	6.4	6.2	7.0	**6.6**
45	7.4	8.0	7.0	7.0	7.3	7.7	**7.4**
46	7.7	7.9	7.2	7.3	7.1	8.0	**7.5**
47	8.7	7.7	8.0	7.3	6.7	7.4	**7.7**
48	6.6	8.0	6.6	6.4	6.3	7.7	**7.0**
48	7.7	8.0	7.0	7.3	7.3	8.2	**7.6**
50	6.8	8.6	7.5	6.6	6.9	8.3	**7.4**
51	6.8	8.4	7.4	6.6	7.4	8.2	**7.5**

LSD ($p < 0.01$) = 0.64 (season), LSD ($p < 0.01$) = 0.50 (population), LSD ($p < 0.01$) = 1.21 (season x population), CV (%) = 8.00

TABLE II
SCALE VALUE OF 7.5 AND HİGHER QUALITY GRASS POPULATIONS LOCATION, LATITUDE,LONGITUDE AND ALTITUDE VALUES

Locations number	Locations name	Latitude (N)	Longitude (E)	Turfgrass Quality	Altitude
3	Hatunsaray-Konya	37.35	32.20	7.5	1097
10	Cihanbeyli-Konya	38.42	32.44	7.7	989
12	Mihaliççik-Eskişehir	39.52	31.29	7.6	1372
28	Deşdiğin-Konya	38.05	31.40	7.7	1475
32	Karaman	37.31	31.27	7.7	1127
36	Argıthan-D.hisar arası-Konya	38.09	31.40	7.5	1176
38	Taşkale-Karaman	37.08	33.35	7.6	1278
41	Argıthan-D.hisar arası-Konya	38.11	31.40	7.9	1158
46	Aksaray-Ereğli arası-Aksaray	37.32	34.22	7.5	1627
47	Taşkale-Karaman	37.09	33.26	7.7	1108
48	Akşehir-Konya	38.27	31.19	7.6	981
51	Akşehir-Konya	38.27	31.19	7.5	981
52	Akşehir-Konya	38.27	31.19	7.6	920
58	Sarayönü-Konya	39.10	31.09	7.6	920

III. Results And Discussion

Populations of perennial turfgrass quality of the average values of the F test and LSD values for the data given in Table I. Grass on the quality of the results given in Table I Mean values and LSD. Statistically significant seasonal averages, seasonal averages, and population x population interaction p <0.01 level were significant. Table I is analyzed in terms of the quality of the grass population mean 6.5 (P21, P57) and 7.9 (P41), respectively. Researchers worked on similar topics in italy during their work conditions, quality of perennial turf grass varieties identified varied between 4.1 and 7.0 [6]. In another study conducted in Belgium, 1-5 scale was used for determining the quality of the grass. Between 1.8 and 4.5 were working on the quality of the grass [7]. In this study, responses of populations according to the season has been different.

Populations of 7.5 and above Value Turf Quality Scale of location, latitude, longitude and elevation values. In addition, the quality of turfgrass populations in the locations of 7.5 and above, latitude, longitude, and elevations are given in Table II data on the quality of the turfgrass. According to Schedule 3-year (2007-2008-2009) seasonal averages, between Argıthan - Doganhisar (Konya) 38.11 latitude, 31.40 longitude, altitude 1158 m high with a very annual turfgrass populations have been identified turfgrass quality is 7.9 is population numbered 41. The genotypes(14) belonging to different populations separated for use in future breeding studies. Currently, the method of breeding new varieties of perennial grass variety improvement of synthetic work carried out.

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