Contents available at ISC and SID

Journal homepage: www.rangeland.ir

Research and Full Length Article:

Determining the Preference Value of Perennial Grasses Using Preference Index and Sheep Grazing Time Methods in Grasslands of the Middle Alborz, Iran

Saeed Rashvand[A], Hassan Yeganeh[B], Fazel Amiri[*C]

[A]Ghazvin Research Center for Agriculture and Natural Resources, Department of Forest and Rangeland, Iran.
[B]Department of Natural Resources, Gorgan University of Agriculture and Natural Resources, Iran.
[C]Department of Engineering, Bushehr Branch, Islamic Azad University, Bushehr, Iran (Corresponding Author), Email: amiri_fazel@yahoo.com

Abstract. Preference value means livestock preference to eat some plants relative to other plants or species. Accordingly, by studying the preference values, the range managers could determine the rangelands grazing capacity to achieve the optimum performance of livestock and to guarantee the stability of rangeland ecosystem. The objective of this study was to determine the preference value of perennial grasses using two methods of preference index (species feeding frequency) and sheep grazing time (feeding time recording) in a semi-steppe rangeland in the middle Alborz Mountains of Iran during four consecutive years (2010-2013). The collected data were tested for normality and then, analyzed by the software of SAS9.1. The means comparisons were made using the Duncan method. Results showed that sheep preferred five grass species (Bromus tomentellus, Festuca ovina, Dactylis glomerata, Agropyron intermedium, and Agropyron trichophorum) in the rangeland. There were significant differences between species and years for grazing time method; however, there were no significant differences for preference index. Also, there were significant differences between months within years for both methods. Results showed that A. trichophorum with the average value of 13.8% grazing time was ranked as the first species followed by D. glomerata with the average value of 11.1% as the second one (Grazing time method). There were no significant differences between A. trichophorum, B. tomentellus, D. glomerata and F. ovina regarding the preference index with the average values of 0.57, 0.75, 0.70 and 0.56, respectively. Overall, the results indicated that grazing time percent method in semiarid rangelands gives more realistic results as compared to the preference index method because of the concrete and tangible results.

Key words: Preference value, Grazing time, Grazing capacity, Alborz mountain rangeland

Introduction

One of the basic principles of rangeland management is to determine grazing capacity to achieve the optimum performance of livestock and to manage the stability of range ecosystem (Galt *et al*., 2000; Meen, 2000). One of the most important factors in determining the grazing capacity is the preference values that means the livestock preferring to eat a specific plant to the others (Heady, 1964). The preference value is detected by two factors: the factor related to livestock and he one related to plant (Campbell *et al*., 2006; Ngwa *et al*., 2000; Bijanzadeh *et al*., 2010; Azadbar *et al*., 2011; Amiri *et al*., 2012).

Malechek and Provenza (1983) stated that when grasses are plentiful, goats do not graze all the parts of shrubs and select some parts with more nutritional value and also prefer a combined diet. Based on the study of plant compounds, Vallentine (2001) showed that the diet of sheep is composed of 2 to 23 percent of shoots, 9 to 62 percent of broad leaves and the remainder of narrow leaves, and reported a high variation in the diet of sheep. The percentage of usage and increasing need to forage for livestock, the estimation of rangeland capacity and pasture management are the components related to the estimation of dry matter consumption by livestock (Cordova *et al*., 1978; Vazquez and Smith, 2000). High forage consumption is estimated by livestock factors (physical, physiological, psychological and behavioral ones) and environmental factors (diet, climate and management). Some factors increase the consumption of forage by livestock or at least keep it in a high level and some other factors decrease the consumption of forage and primarily forage consumption is associated with several factors (Abdollahi *et al*., 2009; Amiri *et al*., 2014).

Erfanzadeh *et al*. (2014) investigated the preference values of plant species in three age classes of Kaboudeh sheep in rangelands of Bavanat, Fars. Sheep grazing times from different plant species were recorded using a Grazing Time method (chronometer). The results showed that the age of animals and plant species had significant effects on preference values of plant species and species of *Poa pratensis* and *Avena fatua* for young animals and *Acer cinerascens* for older ones had higher preference values. Ashouri Sanjabi *et al*. (2013) investigated the preference values of forage species of Tali goat in Chabahar rangelands of Iran during 2008-2010. To determine the preference value, time recorder method was used. Time of grazing of specific plant species by livestock was monthly recorded and analyzed during February to April. Results showed that the annual broad-leaved *Launaea mucronata* species had the highest preference value while two species of *Sporobolus arabicus* and *Lotononis platycarpa* had the lowest ones.

Ngwa *et al*. (2000) followed livestock 5 times for every herd and every 10 minutes to determine the preference values for sheep and goats, recorded the grazed species and estimated the grazing period of each species. Their study also showed that sheep spends two third of their time to graze grasses and goats spend most of their time to graze branches. The results also showed that *Acacia seyal*, *Acacia sensegal*, *Pterocarpus lucens* and *Ziziphus mauritiana* have high preference values. Hussain and Durrani (2009) by investigating the preference value of country rangelands concluded that sheep spent 54% of grazing time to forbs, 23% to grasses, 22% to shrubs and 1% to small trees, Also, goats spent 60% of grazing time to forbs, 27% to grass, 12% to shrubs and 1% to small trees. Rogosic *et al*. (2006) studied the Mediterranean shrubbery to compare the preference value of sheep and goats and observed

that goats ate more shrubs than sheep and also goats gained much weight in the region; therefore, goats should be kept in this area.

Mirdavoodi and Sanadgol (2009) investigated the preference value of rangeland species of Anjadan (Markazi province) by the grazing time method and concluded that palatable species in early grazing season were used highly by animals and during grazing, such species as *Bromus tomentellus*, *Artemisia aucheri*, *As. glomerata*, and *Buffonia cf. koelzii* were used by the utilization rates of 74, 43, 59 and 56 percent, respectively. Rashtian *et al*. (2008) by determining the preference value of 7 for important rangeland species in steppe areas of Yazd province, Iran concluded that sheep spent much of their grazing time to *Tragopogon, Artemisia* and then to other annual plants with respect to the preference value in the rangeland species in different months of grazing season and its important role in determining the rangeland grazing capacity in order to achieve the optimum performance of livestock.
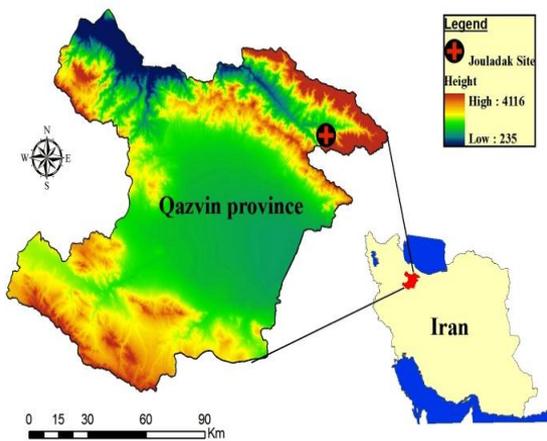
The aim of this study was to determine the preference value of rangeland species in the middle Alborz region, Iran using the preference index and the grazing time method. Accordingly, with the preference values, and the forage plants in rangeland management, the grazing capacity of rangelands can be determined to achieve the optimum performance of livestock and to guarantee the stability of rangeland ecosystem.

Materials and Methods
The Study Area
The study area is located in the middle Alborz mountain in 100 km North-East of Qhazvin with the longitude of 36º 21' N 50º 32' E, and altitude of 2400 m. Based on Dumarton coefficient, the climate is semiarid. According to the Embrothermic curve, five months of a year (June, July, August, September and October) are considered as the dry period (Fig. 1). The mean annual rainfall is 600 mm. Minimum, maximum and overall means of annual temperature are 12.5°C, 15.3°C and 13.8°C, respectively (Fig. 2).
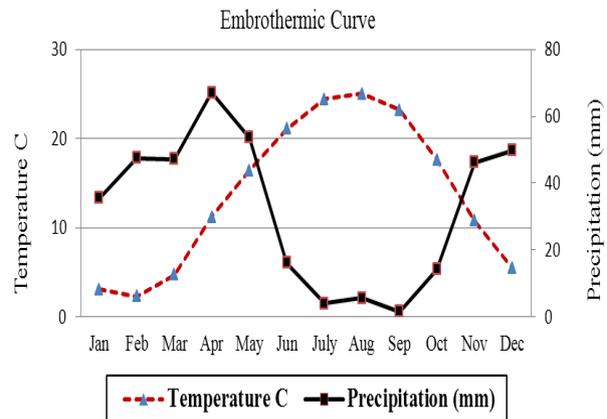

Fig. 1. Geographic position of study area

Fig. 2. Embrothermic curves from 1979 to 2013

The study area has mountainous physiographic types and Loamy soil. The vegetation landscape is grass-shrubbery. Vegetation types in the region include *Agropyron intermedium* and *Astragalus microcephalus* with 82 identified species in the floristic list. The main species

include *Festuca ovina*, *Astragalus microcephalus*, *Bromus tomentellus*, *Dactylis glomerata*, *Thymus kotschyanus*, *Poa bulbosa*, *Agropyron trichophorum*, *Agropyron intermedium*, and *Artemisia aucheri*.

The Mixed breed livestock include 70% local, 20% Fashandi, and 10% Ghomi. Composition of livestock herds includes 30% goats and 70% sheep. The utilization system of this rangeland was rural and traditional. Growing season started from late April till the second half of September. Grazing period was determined from 25 May until the end of October for 155 days based on rangeland grazing permission.

Methodology

Preference value means livestock preference to eat a specific plant rather than the other plants and different species does not have the same preference in different growth stages. Accordingly, with preference value and forage plants in rangeland management, grazing capacity of rangelands can be determined to achieve the optimum performance of livestock (Becker and Lohrmann, 1992; Ngwa *et al.*, 2000; Van Dyne *et al.*, 1980). In this study, the Preference value was calculated by two methods.

Grazing Time Method

In this method, grass preference value was determined by a grazing time method (feeding minutes). During 2010 to 2013 in the middle of June, July, August and September, one to two hours after livestock entrance to rangeland, 20 minutes of livestock grazing in dominant flocks (3 year-old ewes of local race that was distinguished by color) were film recorded and grazing time of each species was specified after transferring to the computer. Then, species were arranged according to grazing time in each month in the descending order and their preference values were measured (Whittaker and Niering, 1975).

Preference index

Another method accomplished for determining the preference value was to determine the consumption percentage of the species; this method is called Preference index. In this method, after specifying five same stands of grasses for each grazing month, inside and outside of the enclosure were harvested in the late of each month; then, after the deduction of the gained forage outside from inside the enclosure, preference values of forage were calculated (Becker and Lohrmann, 1992). Table 1 shows the classification of palatability based on preference index. According to P_{index} values, the class of palatability was determined (Van Dyne and Heady, 1965).

$$P_{index} = \frac{FD}{PRFs} \qquad (1)$$

Where:
FD = forage ratio in the livestock diet,
PRFs = production ratio of the forage species.
These two parameters are determined as follows:

$$FD = \frac{Ps}{TPs} \times 100 \qquad (2)$$

$$PRFs = \frac{Cs}{TCs} \times 100 \quad (3)$$

Where:
Ps = production of each species in the month,
TPs = total production of the species in the month.
Cs = consumption of each species in the month,
TPs =total consumption of the species in the month.

Table 1. Classification of Preference Value Index (P_{index})

P_{index}	Definition
≥2.1	The complete preference and highly palatable species
1.4- 2	The relative preference and relative palatable species
0.7-1.3	The moderate preference and medium palatable species
0.3- 0.6	The relative avoidance and almost non-palatable species
≤ 0.2	The complete avoidance and completely non-palatable species

Statistical Analysis

The data were tested for normality using Shapiro-Wilk statistic. Finally, the data were analyzed by the SAS software

version 9.1. Data were combined over years using the split plot in time based on the completely randomized block design and the means were compared using the Duncan's Multiple Range Test at p<0.01.

Results

The Main Effects of Species, Month and Years

Results of means comparison of the species preference value of grass species are presented in Table 2. Results showed that *A. trichophorum* with the average value of 13.8% grazing time was ranked as the first one followed by *D. glomerata* with the average value of 11.1% as the second one. There were no significant differences between *A. trichophorum*, *B. tomentellus*, *D. glomerata* and *F. ovina* for preference index method with the

average values of 0.57, 0.75, 0.70 and 0.56, respectively (Table 2).

In comparisons between months, higher and lower preference indices with the average values of 1.5 and 0.001 were observed in June and September, respectively. For grazing time percent, June and July with the average values of 9.56% and 9.06% were ranked as the first class as compared to two other months. There was no difference between two last months of the grazing season according to both methods (Table 3).

There was a significant difference between years for grazing time method but there was no difference between years for preference index. For grazing time method, 2012 had the highest grazing time percent and also there was no grazing time difference between 2011 and 2013 (Table 4).

Table 2. Means comparison of the species preference value based on grazing time and preference index

Species	Preference index	Grazing time method (%)
Agropyron trichophorum	0.567 [a]	13.81[a]
Agropyron intermedium	0.306 [b]	1.90 [e]
Bromus tomentellus	0.707 [a]	6.86 [c]
Dactylis glomerata	0.759 [a]	11.10 [b]
Festuca ovina	0.56 [ab]	4.63 [d]

Means of columns followed by the same letters are not significant at p<0.05.

Table 3. Means comparison of month preference value based on grazing time and preference index

Month	Preference index	Grazing time percent
June	1.500 [a]	9.560 [a]
July	0.900 [b]	9.057 [a]
August	0.043 [c]	7.120 [b]
September	0.001[c]	6.510 [b]

Means of columns followed by the same letters are not significant at p<0.05.

Table 4. Means comparisons of years preference value based on grazing time and preference index

Year	Preference index	Grazing time (%)
2010	0.47 [a]	5.95 [c]
2011	0.78 [a]	7.71 [b]
2012	0.56 [a]	9.45 [a]
2013	0.61[a]	8.01 [b]

Means of columns followed by the same letters are not significant at p<0.05.

The Interaction Effects

The species × month interaction for preference index and grazing time method are shown in Figs. 3 and 4, respectively. There were significant differences between species reaction and months in both methods. All the species had the highest preference index in June and July and the lowest preference index was obtained in August and September (Fig. 3).

The trend of grazing time percent over months was different. In *Agropyron trichophorum* and *Bromus tomentellus*, the highest grazing time was observed in June and July. In contrast, for *Dactylis glomerata*, the highest grazing time was observed in September and there were no significant differences between other months. In *Festuca ovina*, the highest grazing time percent was observed in June (Fig. 4).
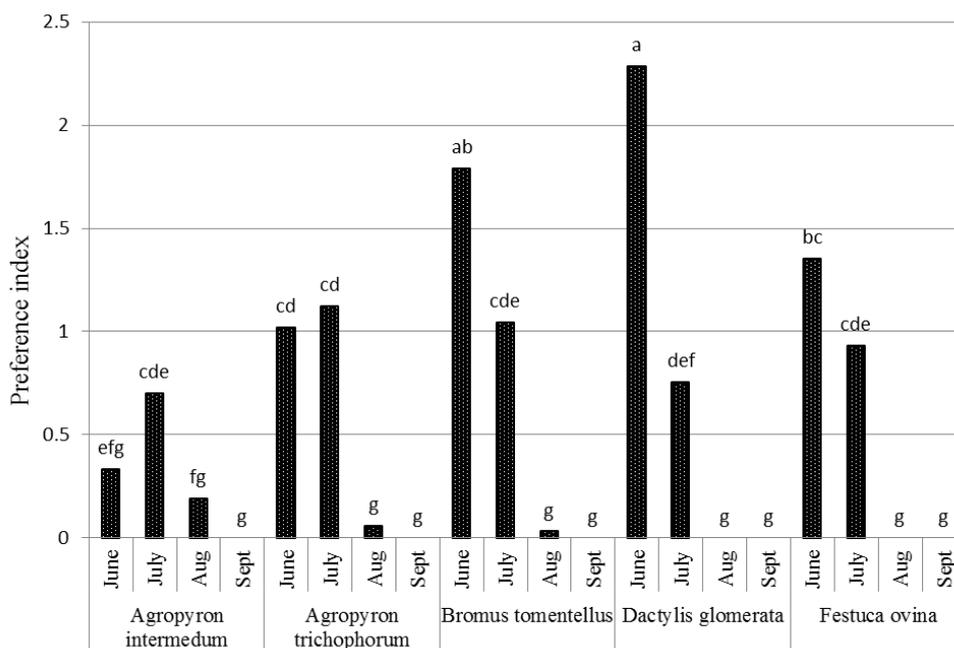
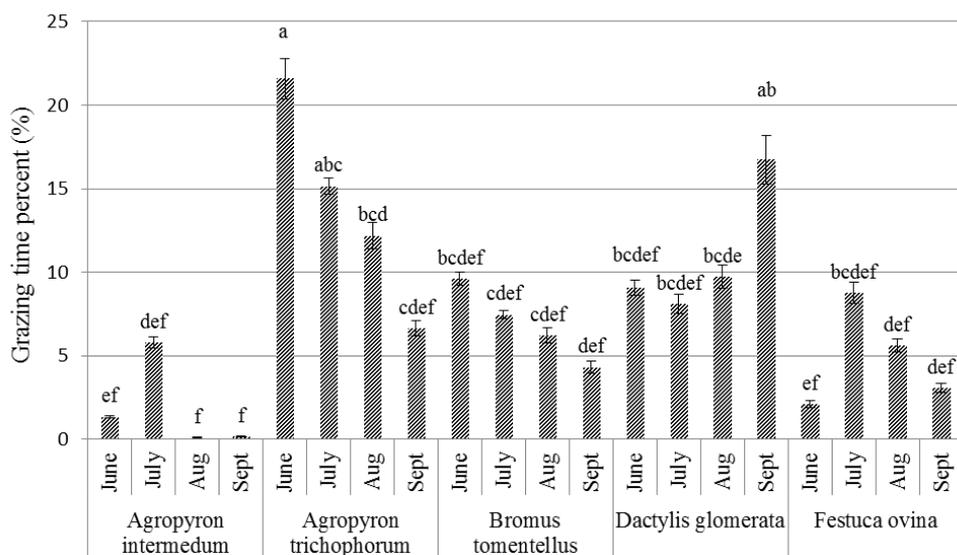**Fig. 3.** Means comparison of species × month interaction for preference index

Fig. 4. Means comparison of species × month interaction for grazing time percent method

Discussion

Considering the methods used in the recent study to determine the preference value of five grass species, the results of Table 2 showed that *A. trichophorum* was the dominant type in the study area and based on grazing time percent method, this species had the highest preference value as compared to other species. In contrast, *A. intermedium* had the lowest grazing time percent. The *D. glomerata* and *B. tomentellus* had the highest animal dietary preference based on preference index method and *A. intermedium* had the lowest value for both methods. *A. trichophorum* in the studied area was more abundant than other species; therefore, the estimation of its preference value based on grazing time method can be more preferable than preference index. This finding is validated by the finding of Abdullahi *et al.* (2009) stating that small distribution of species affected the consumption rate of plant. Other reports

indicated direct relationships between the plant availability and its selection as food (Springfield and Reynolds, 1951; Holechek *et al*., 1984; Malechek and Provenza, 1983; Aregheore *et al*., 2006). However, according to both methods, *A. intermedium* had the lowest palatability so that livestock had to graze this species because of loss of palatable species. Overall, species preference value changes were significant in the grazing time method whereas there were no significant differences for preference index.

It is noteworthy mentioned that according to the grazing period (in this study from June to September), although there was no significant difference between the months of June and July in grazing time method, the highest and lowest grazing values were related to June and September, respectively. In fact, sheep may do their grazing mostly in June and July and near to the end of grazing months and available decreased forage, the amount of grazing pressure is reduced. Mirdavoodi and Sanadgol (2009) noted that the preference value of plant species is highly variable in different periods of grazing season and between different plant species.

The results of the species and grazing season interaction showed that *D. glomerata* had the highest preference index in June whereas *A. trichophorum* was considered as the abundant species in the studied area. *D. glomerata* had the maximum value in June by grazing time method and it was noteworthy that *A. intermedium* had assigned to the lowest position of grazing value because of lower palatability by both methods. But this minimum value was observed in September for the preference index and in August and September for grazing time method. The reason for this discrepancy is due to the phenological and morphological forms of species. First, both *Dactylis* and *B. tomentellus* species started the vegetative phase earlier and produced more leaves than

other species. Second, both species at the beginning of vegetative growth stage had wider and more brittle leaves than other species as livestock preferred both of them. In contrast, *Festuca ovina* at the beginning of vegetative stage had fibrous leaves than other species; this factor causes the changes in the animal preference. Regarding two other species of *A. intermedium* and *A. trichophorum* due to the grazing of their immature green spikes in July, the livestock preferred them more than previous months. Also, Ahmadi *et al*. (2009) in his study indicated significant differences of animal age, species and month interaction effects on preference index and the percentage of grazing time method.

In both methods, the grazing pressure was reduced on perennial grasses in 2012 in presence of forb species, annual grasses, perennial forbs and perennial thorn-less *Astragalus* and livestock had diversity in grazing and abundance of species preference. In grazing time method, it is noticed that the grazing pressure decreased on available species in 2010 and the highest amount of grazing was related to 2012. In 2012, because of drought period and probably loss of these species, the value of grazing of these species was reduced.

Our study showed the reduction of palatable species and also the reduced amount of forage at the end of grazing season. Also, local farmers were forced to bring folds inside the village from mid-July to prevent from the death of young livestock and reduction of their products but they kept the sheep being older than two years and more resistance to harsh conditions in the mountains until winter snow and cold pressure. In middle Alborz Mountain region, the departure of livestock from the rangeland occurs in early November and they move to lower elevations toward village and use farm pasture for the agricultural products. It was also shown that species composition and the amount of available forage to

livestock in rangeland are the main determining factors of plant preference by livestock. For example, the existence of palatable grasses next to annual and perennial forbs and shrubs in Alamut rangeland, Gazvin is very important and reduces the grazing pressure on this species.

Overall, the results showed that the preference value of species changes in different periods of grazing season and between different species in different years although this difference was not significant especially for years and species whereas the grazing time method was significant in all three investigated cases. Amiri *et al*. (2012) showed that there was no significant difference for preference value of species in sites, months and years whereas Ahmadi *et al*. (2009) showed that the preference value of each grazed species during different months was variable as our results confirmed it in our study. Grazing time method provides more realistic results than the preference index method because of being more concrete and tangible. Habibian *et al*. (2010) investigated both morsel counting and grazing time methods in the semi-stepped rangeland in Fars, Iran and stated that both methods had the same results. In this research, the

grazing time method was recommended because of high accuracy, easy to do and repetition by computer operations despite longer time consuming and much cost as compared to morsel counting whereas Rashtian *et al*. (2008) preferred morsel counting method in comparison with that for grazing time method because of measurments with least means and equipment. They determined the preference value of seven important rangeland species in steppe areas of Yazd, which was done by grazing time and morsel counting.

Conclusion

Assessment of rangelands is an activity that frequently challenges those involved in the livestock industry, environmental protection, and land and rangeland management. Quantity and quality of available forage had some effects on feeding time and preference value by sheep. Grazing time method during a grazing season provides more acceptable results with regard to the preference value for perennial grasses. In this research, *A. trichophorum* and *A. intermedium* had the highest and lowest preference values based on two methods and other species were ranked as the middle ones.

Reference

Abdollahi, T.G.A., Dianati Tilaki, TGA., Farzadmehr, J., Sohrabi, H., 2009. Relative palatability of plant species for camel in southwest of Birjand desert area. Rangeland 3(3): 428-443. (In Persian).

Ahmadi, A., Sanadgol, A., Mohseni, S.M., Arzani, H., 2009. Investigation of grazing behavior and diet selection by Zandi sheep (Case study: desert rangelands of Houze Sultan, Qom). Rangeland 3(2):232-245. (In Persian).

Amiri, F., Mohamed Shariff, A., Tabatabaie, T., Pradhan, B., 2014. A geospatial model for the optimization grazing management in semi-arid rangeland of Iran. Arabian Journal of Geosciences 7(3): 1101-1114.

Amiri, F., Shariff, A.R.M., Tabatabaie, T. 2012. Monitoring Land Suitability for Mixed Livestock Grazing Using Geographic Information System (GIS). In: Alam BM (ed) Application of Geographic Information Systems. In Tech, Croatia. http://dx.org/10.5772/47939

Aregheore, E., Ali, I., Ofori, K., Rere, T., 2006. Studies on grazing behavior of goats in the Cook Islands: The Animal-Plant complex in forage preference/palatability phenomena. Inter. Jour. Agric Biol., 8(2):147-152.

Ashouri Sanjabi, P., Fayaz, M., Zare, N., Gharanjik, A., Yeganeh, H., Afrougheh, S., 2013. The Study of Preference Values of Forage Species and Grazing Behavior of Tali Goat in Chabahar Rangelands of Iran. Jour Rangeland Science, 3(4): 312-320.

Azadbar, M., Arzani, H., Azimi, M.S., Mozafarian, V.A., Shad, G.H.A., Saghafi, F., Tavakoli, H., Naseri, S., 2011. Rangeland

monitoring in the northeast of Iran. Jour. Range Desert Research, 18(2): 231-243. (In Persian).

Becker, K., Lohrmann, J., 1992. Feed selection by goats on tropical semi-humid rangeland. Small Ruminant Research 8 (4): 285-298.

Bijanzadeh, E., Emam, Y., Ebrahimie, E., 2010. Determining the most important features contributing to wheat grain yield using supervised feature selection model. Aust. Jour. crop science 4(6): 402-407

Campbell, B.M., Gordon, I.J., Luckert, M.K., Petheram, L., Vetter, S., 2006. In search of optimal stocking regimes in semi-arid grazing lands: One size does not fit all. Ecological Economics 60 (1):75-85.

Cordova, F., Wallace, J.D., Pieper, R.D., 1978. Forage intake by grazing livestock: a review. Jour. Range Management 31(6): 430-438.

Erfanzadeh, R., Ashrafzadeh, M., Hosseini Kahnuj, S. H., Alizadeh, A., 2014. Preference Value Evaluation of Rangeland Plant Species for Kaboudeh Sheep. Jour. Rangeland Science, 4(3): 195-202.

Galt, D., Molinar, F., Navarro, J., Joseph, J., Holechek, J., 2000. Grazing capacity and stocking rate. Rangelands 22(6): 7-11

Habibian, S., Arzani, H., Javadi, S., Habibian, S.H., 2010. Comparison of two methods of preference value determination of plant species for sheep in semi-stepper rangelands in Fars province. Rangeland 4 (2):188-197. (In Persian).

Heady, H.F., 1964. Palatability of herbage and animal preference. Jour. Range Manag. 17(2):76-82

Holechek, J., Vavra, M., Pieper, R., 1984. Methods for determining the botanical composition, similarity, and overlap of range herbivore diets.425-471.

Hussain, F., Durrani, M., 2009. Nutritional evaluation of some forage plants from harboi rangeland, kalat, Pakistan. Pakistan Journal of Botany. 41(3):1137-1154.

Malechek, J. and Provenza, F. 1983. Feeding behavior and nutrition of goats on rangelands. World Animal Review (47): 38-48.

Meen, A., 2000. Grazing intensity and forage quality on the Arizona Strip. Rangelands 22(6):12-15.

Mirdavoodi, H.R., Sanadgol, A.A., 2009. Study of preference value of range plants in key ranges of Anjedan's rangelands of Markazi province. Jour. Range Desert Research 16(2):190-199. (In Persian).

Ngwa, A., Pone, D., Mafeni, J., 2000. Feed selection and dietary preferences of forage by small ruminants grazing natural pastures in the Sahelian zone of Cameroon. Animal feed science and technology 88 (3): 253-266.

Rashtian, A., Mesdaghi, M., Beldaji, F., Barani, H., 2008. Investigation of preference value of Yazd Steppic Rangelands species. Iranian Jour. Agric Natural Res Science 16 (3): 20-31. (In Persian).

Rogosic, J., Pfister, J., Provenza, F.D., Grbesa, D., 2006. Sheep and goat preference for and nutritional value of Mediterranean maquis shrubs. Small Ruminant Research 64(1): 169-179

Springfield, H., Reynolds, H., 1951. Grazing preferences of cattle for certain reseeding grasses. Jour. Range Management 4(2):83-87.

Vallentine, J. F., 2001. Grazing Management. Acad. Press,- 659 pages

Van Dyne, G.M., Brockington, N., Szocs, Z., Duek, J., Ribic, C., Breymeyer, A., 1980. Large herbivore subsystem. in Grasslands, systems analysis and man, (eds A.I. Breymeyer and G. M. Van Dyne), pp. 269-537, IBP 19, Cambridge University Press, Cambridge.

Van Dyne, G. M., and H. F. Heady. 1965. Botanical composition of sheep and cattle diets on a mature annual range. Journal of Agriculture Science Hilgardia 36: 465–468.

Vazquez, O., Smith, T., 2000. Factors affecting pasture intake and total dry matter intake in grazing dairy cows. Journal Dairy Science 83(10): 2301-2309.

Whittaker, R.H., Niering, W.A., 1975. Vegetation of the Santa Catalina Mountains, Arizona. V. Biomass, production, and diversity along the elevation gradient. Ecology 56(4):771-790.

تعیین ارزش رجحانی گراس‌های دائمی با استفاده از روش شاخص ارجحیت و میزان مصرف گوسفند در گراسلندهای البرز مرکزی ایران

سعید رشوندالف، حسن یگانهب، فاضل امیری*ج

الفمرکز تحقیقات کشاورزی و منابع طبیعی استان قزوین، بخش جنگل و مرتع

بگروه منابع طبیعی، دانشگاه کشاورزی و منابع طبیعی گرگان

ج گروه مهندسی، واحد بوشهر، دانشگاه آزاد اسلامی، بوشهر، ایران، (نگارنده مسئول)، پست الکترونیک: amiri_fazel@yahoo.com

چکیده. ارزش رجحانی به معنی ترجیح دام برای خوردن بعضی گیاهان نسبت به گیاهان یا گونه‌های دیگر، می باشد. بر این اساس با مطالعه ارزش رجحانی، مدیران مرتع می‌توانند ظرفیت چرا مراتع را برای رسیدن به عملکرد مطلوب دام تعیین کنند که تضمین کننده پایداری اکوسیستم است. هدف از این مطالعه تعیین ارزش رجحانی گراس‌های دائمی با استفاده از روش شاخص ارجحیت و میزان مصرف گوسفند در مراتع نیمه استپی در گراسلندهای البرز مرکزی ایران در بازه زمانی ۲۰۱۰ تا ۲۰۱۳، به منظور دستیابی به عملکرد مطلوب دام و پایداری در استفاده از مراتع منطقه بود. ترجیح استفاده گوسفند از ۵ گونه گراس (Bromus tomentellus, Festuca ovina, Dactylis glomerata, Agropyron intermedium و Agropyron trichophorum) مراتع منطقه بود. نتایج روش زمان مصرف نشان داد که ارزش رجحانی برای گونه‌ها و سال‌ها تفاوت معنی‌داری داشت، اما در روش ارجحیت بین این دو روش تفاوت معنی‌داری مشاهد نشد. بر اساس نتایج گونه‌های A. trichophorum و D. glomerata به ترتیب با ۱۳/۸ و ۱۱/۱ درصد زمان مصرف دارای بالاترین ارزش رجحانی بر اساس روش زمان مصرف بودند. بر اساس روش شاخص انتخاب اختلاف معنی‌داری بین گونه‌های B. tomentellus، D. glomerata و F. ovina مشاهده نشد و میانگین شاخص انتخاب آنها به ترتیب ۰/۷۵، ۰/۸۰ و ۰/۵۶ بودند. به طور کلی، نتایج نشان داد که روش زمان مصرف در مراتع نیمه خشک نتایج واقعی‌تری را نسبت به روش ارزش رجحانی نشان داد.

کلمات کلیدی: ارزش رجحانی، زمان چرا، ظرفیت چرا، مراتع کوهستانی البرز