Introduction

Quality roughage shortage is still one of the most important problems of animal husbandry of Turkey (Sayar et al., 2010; Başbag et al., 2015). Meadows and grasslands are the cheapest source of quality roughage because they do not require any planting or care in general and they contain cheap and various types of plants (Bakır, 1987; Açıkgöz, 2001). There are 14.6 million hectares of grassland and 1.45 million hectares of meadow in Turkey (Topçu Demiroğlu and Özkan, 2017). Although the total dry matter produced and the feed quality of these meadows is always lower than the conventional feed crops obtained from monoculture or grass-legume mixtures (Tallowin and Jefferson, 1999; Sturludóttir et al., 2013), these offer benefits to overcome future agricultural challenges that go beyond the animal performance level (Hammond et al, 2014; Reine et al., 2020). In the Eastern Anatolian Region, grasslands are grazed with animals from spring to autumn, while meadows are usually mown once in July and after mowing, they are grazed with animals, and these generally wet areas are compacted by animals (Manga, 1975). Most of the grasslands are located in arid and semi-arid climatic zones. Van province has 1.239.289 ha of grassland area and 119.733 ha of meadow area (Turan and Altuner, 2014). Failure to comply with management rules of low rainfall is one of the most important reasons for the degradation of vegetation in grasslands (Holechek et al., 2004).

Grazing pressure on meadows and grasslands, which are an indispensable element of economic animal husbandry, is incease in parallel with the needs of the increaser population. This pressure on grasslands and early grazing brought about a decrease in yield (Sayar et al., 2015). However, the increaser need for shelter of the increaser population is also destroyed by the new roads and agricultural areas built. Grasslands are natural resources that can be used for a long time and renew themselves if grassland management rules are abided. However, if these rules are not abided, they turn into inefficient and barren fields in a very short time (Bilgen and Özyiğit, 2005). Our country’s grasslands are in a position to negatively affect our livestock breeding, and therefore the country’s
grassland area of Çolpan village, the study could not be carried out as it was not possible to identify plants in grassland under heavy grazing pressure. The meadow where the study was conducted is a natural meadow, which is mown, and grazed after mowing. The amount of precipitation in the province of Van for the year 2020 was recorded as 377.3 mm, which is close to the long-term average (387.9 mm). The average temperature and relative humidity for the long term are 9.18°C and 57.93%, and 9.32°C and 55.84% for 2020. It receives the most rainfall in March, April, and May (Anonymous, 2020). The area covered with plants, botanical composition, forage yield and condition of grassland and meadow were investigated in this study. The Loop method was used to determine the botanical composition. For this reason, 4 Loop direction were conducted in the grassland area and 2 Loop direction in the meadow area. Size of each direction consisted of 100 measurements. Measurements were made in each direction at every other 20 cm on a 20 m line extending in 4 directions from a point considered as the center of each Loop. In total, 400 measurements were made in each Loop. The dominant species in the measurement was recorded, the number of species found in each loop was divided by the number of measurements, and the ratio of the plant covered area was obtained. The ratio of the species in the composition was calculated over the area covered with plants. In identifying the plant species encountered in the vegetation’s greatly benefited from Davis (1978) and Serin et al. (2008). The decreaser, increaser, and invader species, which express the plant species’ palatability and their responses to grazing, have been defined by “Turkey’s Meadow and Grassland Plants” (Serin et al., 2008). In order to determine the herbage yield, samples were taken from the area within a 50×50 cm frame from 6 points representing the meadow and grassland. The samples were dried in a drying cabinet at 70°C for 48 hours and the rate of dry matter was calculated.
Results and Discussion

**Area Covered with Plant**

The study results revealed that the meadow area was covered with plants 100%. The area covered with vegetation in the examined part of the grassland of Colpan village was determined as 86%. Çınar et al. (2014), reported that the area covered with plants in five different grasslands is between 84.4-99.0%, and in a different study, Çınar et al. (2014) reported that the average rate was 95.3%. Çaçan and Başbağ (2016) reported that the area covered with plants is an average of 68.19%, and it varies between 48.25-86.67% according to years, directions, and altitudes.

Ünal et al. (2012) reported that the area covered with plants may differ according to the use of grassland, and also different results may be obtained with the effect of grazing pressure and vegetation measurement methods.

**Botanical Composition**

Poaceae, Asteraceae, and Fabaceae families had the highest density in the grassland area and Cuscutaceae, Dipsacaceae, and Hypericaceae had the the lowest. Similarly; many researchers reported that Fabaceae, Asteraceae, and Poaceae families were more found in natural meadow and grasslands of the Turkey than other plant families (Beyiş and Sabancı, 2011; Çaçan et al. 2014; Babalik and Sarıkaya, 2015; Şahin et al. 2015; Çınar et al., 2018; Çınar et al., 2019).

In the grassland area were identified 69 species belonging to 17 families. Total of 37 species in the grassland were perennial (45.29%), two are annual, biennial, or perennial (0.26%), 27 were annual (47.61%), and 3 were biennial (6.84%). (Table 1, Figure 4). It has been reported that perennial species were more common in different grasslands of our country (Çınar et al. 2019; Ertuş and Pınar, 2019). Aydin et al. (2014) reported that the annual species were more common in the grassland area. Artemisia spicigera (4.74%) Taeniatherum caput-medusae (5.0%) Arenaria serpyllifolia (5.0%) Medicago monantha (3.92%) species were the most common species found in the grassland area.

In the meadow area were identified 21 species belonging to 6 families. Total of 6 species in the meadow were identified as annual (20.75%), 1 as biennial (1.0%), 12 as perennial (76.50%), 1 as annual or biennial (1.75%). In the area where Poaceae family (67.50%) is very dense, species from Fabaceae and Asteraceae families have also been seen in a significant proportion. On the basis of species, the most frequent were Hordeum brevisubulatum (25.5%), Bromus scoparius (16.75%), Taraxacum androssowii (9.25%) and at least frequent were Achillea millefolium (1%), Medicago rigidula (1.0%), Silene conica (1%) (Table 2, Figure 4). In meadow vegetation, as in grassland vegetation, the rate of perennial species were found to be higher.
| Family      | Genus-Species     | DEC | INC | INV | PPC  | Form* |
|------------|------------------|-----|-----|-----|------|-------|
| Apiaceae   | Eryngium billardi | +   | 1.32| P   |      |       |
|            | Grammosciadium   | +   | 0.92| P   |      |       |
|            | Pimpinella       | +   | 0.79| P   |      |       |
|            | Prangos          | +   | 1.05| P   |      |       |
| Asteraceae | Achillea         | +   | 0.67| P   |      |       |
|            | Artemisia        | +   | 4.74| P   |      |       |
|            | Cnicus           | +   | 0.26| A   |      |       |
|            | Cota             | +   | 2.50| A   |      |       |
|            | Coulisina        | +   | 2.11| P   |      |       |
|            | Cymboala         | +   | 0.79| A   |      |       |
|            | Lacuga           | +   | 0.26| B   |      |       |
|            | Senecio          | +   | 1.84| A   |      |       |
|            | Tanacetum        | +   | 0.92| P   |      |       |
|            | Xeranthemum      | +   | 1.84| A   |      |       |
| Boraginaceae| Alkanna         | +   | 0.79| P   |      |       |
|             | Onosma           | +   | 0.26| P   |      |       |
|             | Rinderia         | +   | 1.18| P   |      |       |
|             | Rockelia         | +   | 0.13| A   |      |       |
| Brassicaceae| Alyssum         | +   | 1.97| A   |      |       |
|             | Alyssum szovitsi| +   | 2.89| A   |      |       |
|             | Lepidium         | +   | 0.67| P   |      |       |
|             | Erysimum         | +   | 3.82| B   |      |       |
|             | Sisymbrium       | +   | 0.39| A   |      |       |
| Caryophyllacea| Arenaria       | +   | 2.37| P   |      |       |
|             | Arenaria serpil| +   | 5.00| A   |      |       |
|             | Dianthus         | +   | 0.26| P   |      |       |
|             | Gypsophila       | +   | 0.67| P   |      |       |
|             | Silene           | +   | 0.79| P   |      |       |
|             | Velezia          | +   | 0.79| A   |      |       |
| Chenopodiaceae| Bassia         | +   | 0.53| P   |      |       |
|              | Salsoila         | +   | 0.39| A   |      |       |
| Cistaceae   | Helianthemum     | +   | 4.34| A   |      |       |
| Cuscutaceae | Cuscuta          | +   | 0.13| A&P |      |       |
| Cyperaceae  | Carex senetephi| +   | 2.24| P   |      |       |
| Dipsacaceae | Scabiosa         | +   | 0.13| B&P |      |       |
| Euphorbiaceae| Euphorbia       | +   | 0.67| P   |      |       |
|              | Euphorbia esula | +   | 0.53| P   |      |       |
| Fabaceae    | Astragalus       | +   | 0.13| P   |      |       |
|              | Astragalus       | +   | 2.89| P   |      |       |
|              | Medicago monanha| +   | 5.92| A   |      |       |
|              | Medicago rigidal| +   | 3.95| A   |      |       |
|              | Medicago sativa | +   | 1.18| P   |      |       |
|              | Trifolium arvense| +   | 0.79| A   |      |       |
|              | Trifolium hirtum | +   | 0.79| A   |      |       |
| Geraniaceae | Erodium          | +   | 1.45| A   |      |       |
| Hypericaceae| Hypericum        | +   | 0.39| P   |      |       |
| Lamiaceae   | Clinopodium      | +   | 1.05| A   |      |       |
|              | Salvia frigida   | +   | 1.05| P   |      |       |
|              | Salvia multiflu| +   | 1.45| P   |      |       |
|              | Sideritis        | +   | 0.26| P   |      |       |
|              | Teucrium chamaedrys| +  | 0.26| P   |      |       |
|              | Teucrium polium  | +   | 0.92| P   |      |       |
|              | Thymus kotschyanum| +  | 2.50| P   |      |       |
| Plumbaginaceae| Acantholimon    | +   | 2.24| P   |      |       |
|              | Bromus danthonia| +   | 0.92| A   |      |       |
|              | Bromus erector  | +   | 0.26| P   |      |       |
|              | Bromus japonicus| +   | 0.26| A   |      |       |
|              | Bromus tectorum  | +   | 1.97| A   |      |       |
|              | Dactylis glomerata| +  | 1.05| P   |      |       |
|              | Elymus hispidus  | +   | 1.18| P   |      |       |
|              | Eremopoa persica | +   | 1.18| A   |      |       |
|              | Gaudiniopsis     | +   | 0.26| A   |      |       |
|              | Hordeum marinum  | +   | 0.53| A   |      |       |
|              | Koeleria         | +   | 1.18| P   |      |       |
|              | Poa bulbosa      | +   | 4.08| P   |      |       |
|              | Stipa holoserica | +   | 0.79| P   |      |       |
|              | Taeniatherum     | +   | 5.00| A   |      |       |
| Santalaceae | Thesium billardi | +   | 2.76| B   |      |       |
| Total       |                  |     | 100 |     |      |       |

*A: Annual, B: Biennial, P: Perennial, DEC: Decreaser, INC: Increaser, INV: Invader, PPC: Percentage of Plant Coverage
Forage Yield and Condition of Meadow and Grassland

Dry matter yield in the grassland area was found to be between 68.73-106.9 kg/da and 91.40 kg/da on average. This is compatible with the findings of Ertuş et al. (2018), which were higher than the findings of Buzuk et al. (2009) and Çiplak (2015) working at the grasslands in Van. The dry matter yield of the meadow area was found to be between 331.6-452.9 kg/da and 385.2 kg/da on average. The dry matter yield in the meadows of the Kars region was reported to be between 196.0-250.0 kg/da (Arslan and Tufan, 2011).

The coverage rate of grasses, legumes, and other families of plants in the grassland area were found to be 18.66%, 15.65%, and 65.69% respectively. Çaçan et al. (2014) found the ratio of plants from other families (43.14%) in Bingöl grasslands higher than the ratios of grasses (29.77%) and legumes (27.08%), which were close to each other. Altun et al. (2010) reported that in the barren grassland area of Tekirdağ, grasses take more place in the botanical composition. Terziöğlu and Yalvaç (2004), in the Atmaca and Dönce villages in Van and Bakoğlu and Koç (2002) in Erzurum conditions reported that the proportion of grasses is higher than that of legumes and other families. On the grassland of Önülü village in Van, Ertuş et al. (2018) reported that the rate of grasses is 45.37%, legume is 9.97%, and other family species is 44.66%. Bakoğlu et al. (2019), working at Handüzü plateau in Rize, reported that it consists of 33.37% grasses, 5.75% legumes, and 60.88% plants from other families. Findings were generally compatible with Çaçan et al. (2014). It is not compatible with other studies, the grazing pressure on the grassland, grassland management style such as grazing animal species and the fact that the research areas have ecologies cause decrease in some plant species in vegetation or the spread of some species.

The ratio of grasses, legumes, and other families in the meadow area was found to be 62.75%, 19.0%, and 18.25% respectively. Temel et al. (2016), in their study on arid meadows with different soil characteristics, found that other family species were more dense than grasses. The difference in the findings is due to the different ecologies of the study areas.

In the botanical composition of the grassland area, the decrease, increaser, and invader species were found to be 4.85%, 8.69%, and 86.46% respectively. Temel et al. (2016), in their study on arid meadows with different soil characteristics, found that other family species were more dense than grasses. The difference in the findings is due to the different ecologies of the study areas.

In the botanical composition of the grassland area, the decrease, increaser, and invader species were found to be 4.85%, 8.69%, and 86.46% respectively. In the grassland, the prominent decrease species were found to be Medicago sativa, Elymus hispidus, Koeleria cristata with 1.18%, the increaser were Poa bulbosa (%4.08) and Arenaria blepharophylla (%2.37), and the invader were Medicago monantha (%5.92), Arenaria serpyllifolia
potential of Natural Pastures Vegetation in Gövelek娱乐.

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