

## Animal unit of sheep (Zel breed) grazing in Mazandaran grasslands in Iran

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**Introduction** Animal unit equivalents (AUEs), provide a means of summarising grazing capacity, calculating stocking rates and other stocking variables (Scarnecchia, 1990). Animal units (AU) are often defined in relation to the dominant animal type in an area. In Iran there are 27 sheep breeds which are classified into three main body size classes, namely: small, medium and large. The objective of this experiment was to define animal units, animal and forage requirements for sheep grazing in Mazandaran grasslands.

**Material and methods** The experiment was conducted in a grassland area in Mazandaran province, north Iran, where the Zel breed of sheep is common. Five herds were randomly selected and in each herd five sheep from each of five age classes of 1, 2, 3, 4, and 5 years old were weighed at the beginning and the end of the grazing season. Three and six month old lambs and rams were also weighed. To determine forage quality, three samples from each edible species were collected at three phenological stages (rapid growth, flowering and maturity) and crude protein (CP), Acid detergent fibre (ADF), dry matter digestibility (DMD) and metabolizable energy (ME) were assessed according to Oddy *et al.* (1983). For determination of animal unit day requirement, and in view of topographic conditions, distances to watering points and villages and vegetation density, values calculated by the equation of  $ME = 1.8 + 0.1W$  (MAFF, 1984), where W is live weight, were increased by 50%.

**Results** The average live weight of the five classes of sheep was 30.8 kg (Table 1). This was considered as 1 animal unit, with a requirement at grazing of 7.33 MJ ME per day. Based on forage quality (Table 2) and vegetation composition, the forage requirement to meet the requirement of 1 animal unit were 0.8, 0.91 and 0.96 kg DM at the phenological stages of vegetative (rapid growth), flowering and maturity respectively.

**Table 1** Average live weight (kg) of different sheep classes of the Zel breed

End of Grazing	Beginning of grazing	Age (year or month)	Type of animal
24.83±5.77	27.16±2.47	1	Sheep
32.05±5.81	30.60±2.88	2	Sheep
32.97±3.67	31.46±3.46	3	Sheep
33.96±5.40	33.37±3.50	4	Sheep
31.50±5.98	30.26±2.50	5	Sheep
19.75±1.83		3	Lamb
23.53±3.60		6	Lamb
47.67±3.27		3&4	Ram

**Table 2** The results of the Dankan test showing effects of species on quality

Species	ADF%	CP%	ME (MJ/Kg DM)
Stipa barbata	46a	7.7j	6.1f
Poterium sangoisorba	32ihg	8.9i	8.3b
Atriplex sp.	34fe	16.9c	8.4b
Festuca ovina	30jih	8.5i	8.4b
Bromus briziformis	31ba	8.7i	8.3b
Anthemis altissima	44d	8.5i	6.5e
Thymus kotschyanus	37gfe	9.8h	7.6c
Astragalus microcephalus	34hgf	13.9d	8.3b
Taraxcum officinali	32ji	14d	8.6b
Poa bulbosa	29j	8.2ji	8.6b
Medicago sativa	29j	23.3a	9.6a
Medicago coronata	26k	22.4b	9.9a
Artemisa aucheri	36ed	12.1f	7.9c
Stachys inflata	43cb	10.7g	6.9d
Agropyron tauri	38d	13.1e	7.7c
Achilea millefolium	41c	11.1g	7.1d

**Discussion and conclusions** A clear concept of an animal unit is basic to consideration of range capacity and utilisation (Scarnecchia, 1990). These results indicate that the Zel is a small breed of sheep with the adult ewe (1 animal unit) having average weight of 32 kg with three and six month lambs and rams being 0.65, 0.8 and 1.6 animal unit respectively. The stage of growth greatly affects nutritive levels in the forage plants. This influences the quantity of forage required to supply animal requirements, but, more importantly, low levels of intake mean that animal requirements are unlikely to be able to be met with mature forages.

### References

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