

INDIGENOUS KNOWLEDGE ON USES, AVAILABILITY TRENDS AND VARIATIONS OF INDIGENOUS GRASS SPECIES IN SOUTHERN KENYA

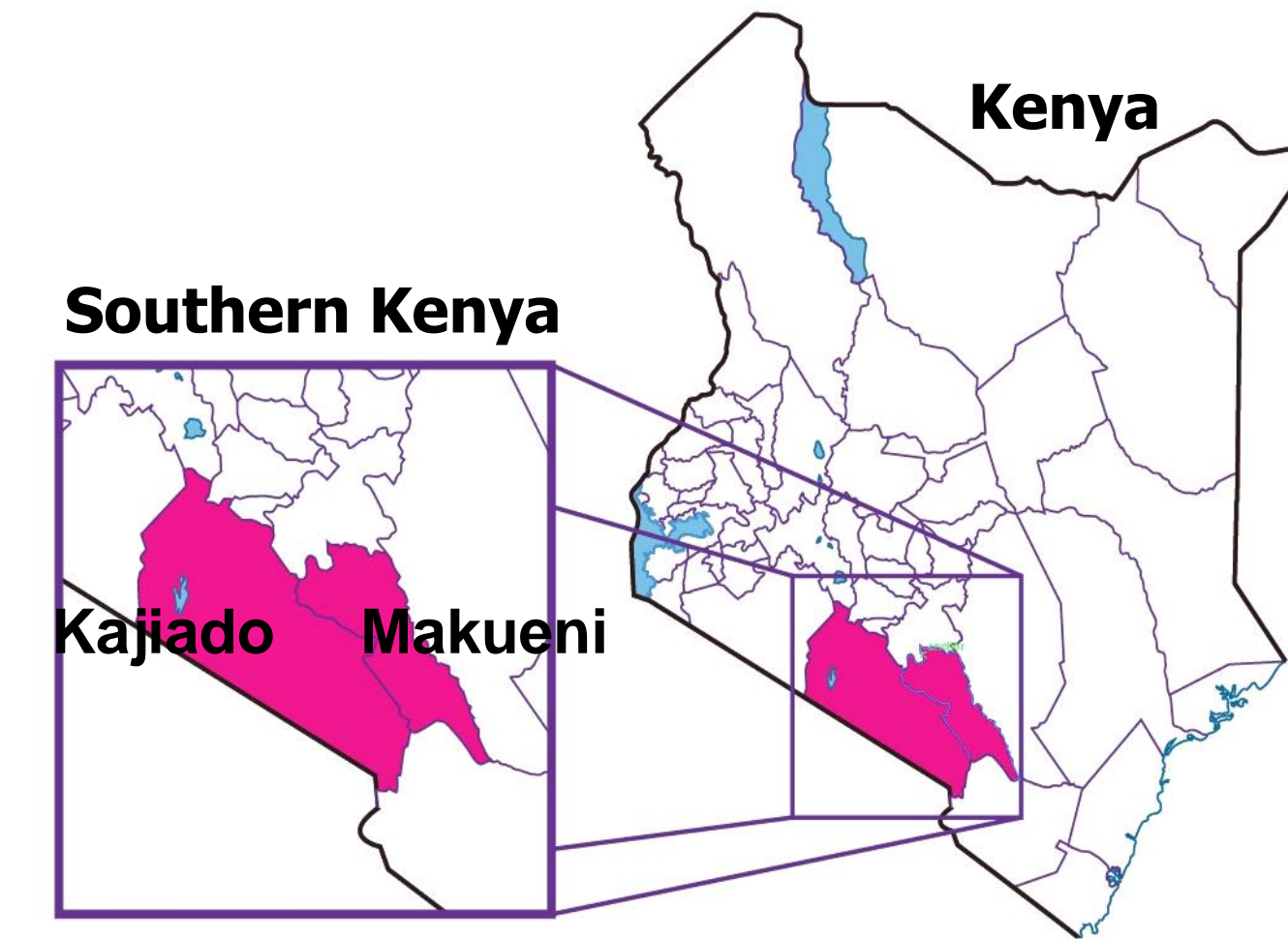
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Introduction

Livestock plays a major role in the livelihoods of pastoral and agro-pastoral communities, which rely on natural pastures to meet the dietary needs of their animals. However, a number of indigenous grass species have been reported to decline, while others have increased, a situation that communities have observed and have their own perceptions of the drivers. This study investigated the perceptions of the pastoral and agro-pastoral communities on the uses of key indigenous grass species, their trends in abundance and availability in Kajiado and Makueni Counties of Southern Kenya.

Study Area

- Makueni county lies between latitude 1° 35' and 3° 00' south and longitude 37° 10' and 38° 30' east.
- Rainfall: 300-1200mm of per year with.
- Temperature: 20.2°C - 35.8°C.
- Main livelihood: Agro-pastoralism.
- Kajiado county lies between 36° 5' and 37° 5' East and 10° 0' and 20° 0' South.
- Rainfall: 300mm -1250mm per year.
- Temperatures: 10-34°C.
- Main livelihood: Pastoralism.



Data Collection

Literature review to identify the key indigenous species based on the communities' preference.

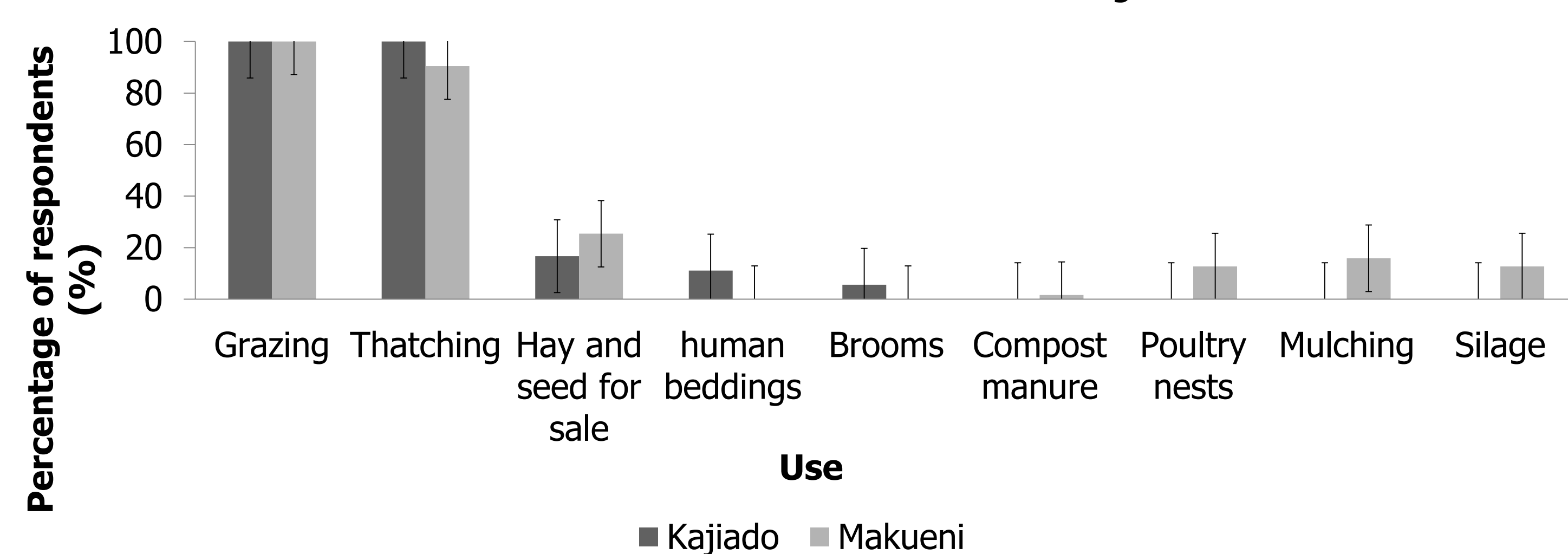


Data Analysis

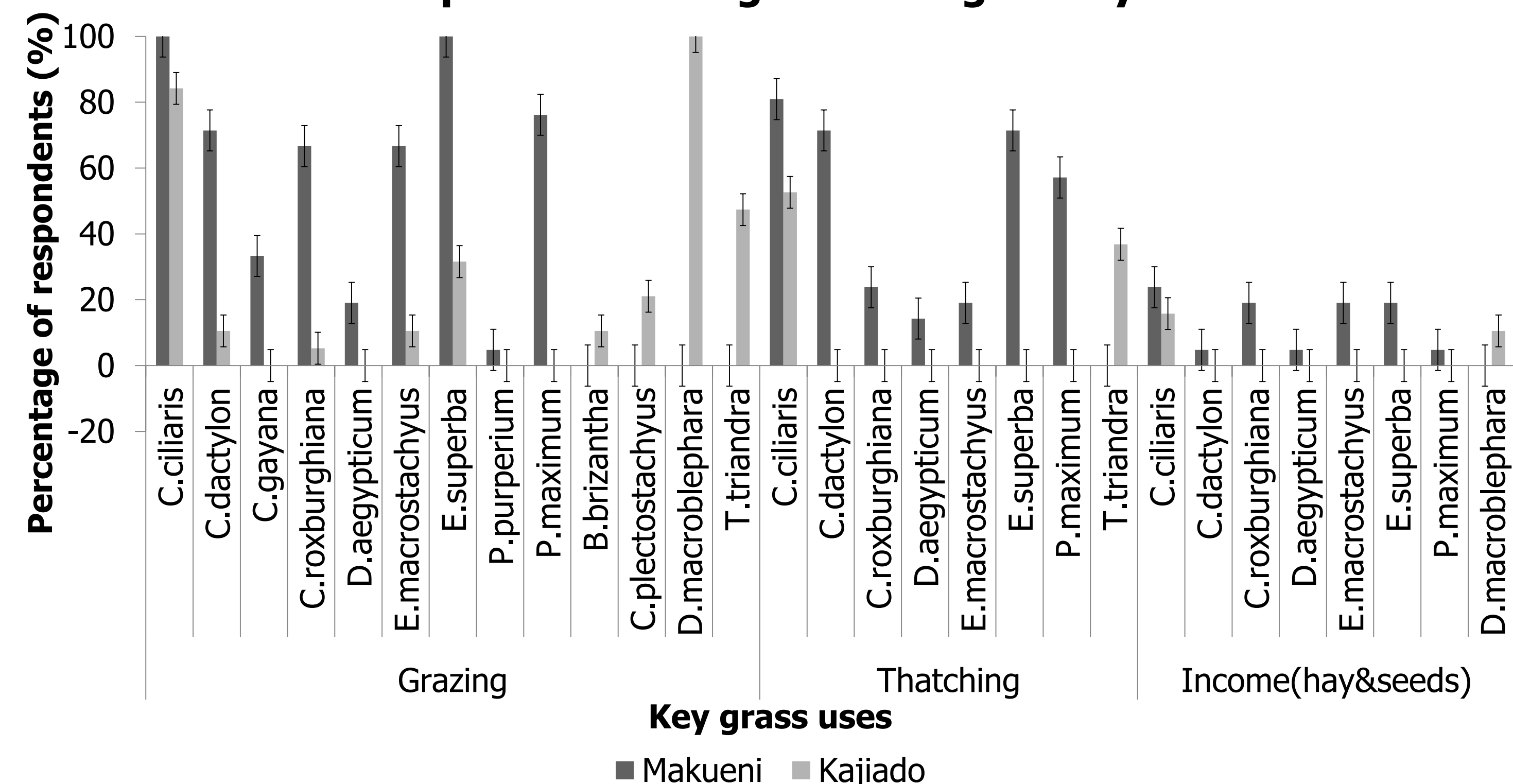
- Quantitative data was analysed using SPSS version 18 to generate descriptive statistics.
- Information on grass ecotypes and reasons for observed availability trends was collated and qualitatively analysed.

Results

Uses of Grasses in Makueni and Kajiado Counties



Grass Species Ranking According to Key Uses



Ecotypes of Grass Species Identified by the Communities

Grass Species	Variety	Characteristics
<i>Cenchrus ciliaris</i>	1	Hard short stems, more stems than leaves, good seeder, greyish inflorescence and grows in drier areas
	2	Short, soft, slender stems (about 45cm), leafy with purple inflorescence, has salty taste, highly preferred by livestock, grows in drier areas
	3	Tall grass (about 1.5m) with whitish leaves, white-blue inflorescence, long broad leaves, grows in swampy areas or along river banks
	4	Hard, long stems, more stems than leaves, purple inflorescence, grows in drier areas.
	5	Tall grass with soft stems, creeping growth habit, highly preferred by livestock, poor seeder, leafy with a white inflorescence, grows in wet areas.
<i>Chloris roxburghiana</i>	1	Tall grass with broad leaves; most of them basal, slender stems, white inflorescence, grows in drier areas
	2	Broad leaves, hard stems, purple inflorescence and not preferred by livestock, grows in drier areas
	3	Broad leaves, hard stems, blue inflorescence, grows in drier areas.
<i>Enteropogon macrostachyus</i>	1	Slender stems and leaves, leafy with a short purple inflorescence, grows in open areas
	2	Tall thick stems, leafy with a white inflorescence, shade loving
<i>Eragrostis superba</i>	1	Tall soft stems, good seeder, leafy with a purple inflorescence, grows in drier areas
	2	Tall hard stems, more stems than leaves, large white-blue inflorescence, grows in drier areas
	3	Short grass with thick stems (about 45-60cm in height), leaves are broad and short and dark green in colour and have a green inflorescence.
<i>Themeda triandra</i>	1	Tall, tufted, more stems than leaves, red inflorescence
	2	Short, leafy, red inflorescence
<i>Panicum maximum</i>	1	Thick stems, broad leaves with prickly hairs, not preferred by livestock
	2	Thick stems, leaves without hairs, highly preferred by livestock
	3	Tall, thick stems, broad leaves, grows in fertile soils, tolerant to light shading
<i>Digitaria macroblephara</i>	1	Broad leaves, thick stems, creeping growth habit, preferred by livestock, found growing mainly in red soils
	2	Slender leaves and stems, creeping growth habit, preferred by livestock, found growing mainly black soils.

Availability Trends of Common Grasses as Perceived by Communities

Trend	Respondents (%)	Reasons for the observed trends
Increasing	35	<ul style="list-style-type: none"> Range rehabilitation and fodder production. Fodder production to support high dietary requirements of improved animal breeds. Domestication, pasture reservation and improvement. Declining soil fertility promoting increaser species.
Declining	60	<ul style="list-style-type: none"> Overgrazing Frequent droughts Increased human and animal population Competition from invasive species Climate variability Land use change e.g. conversion of grazing lands into croplands Low adoption of natural pasture improvement technologies Declining soil fertility Heavy utilization of natural pastures due to the high dietary demands of improved animal breeds
No change	5	<ul style="list-style-type: none"> Domestication of native pastures Pasture reservation and improvement

Conclusions

- The preference of a particular grass species by both pastoral and agro pastoral communities varies with the intended use.
- Knowledge of variations within grass species and the preference of some ecotypes over others by communities shed light on an existing knowledge gap amidst the scientific community.
- Further studies should be done to assess the differences in nutritional status at various stages of growth, biomass and seed yield, as well as drought and grazing tolerance of the various grass ecotypes.

References

Kirwa E. C., Ngugi K., Chemining'wa G., Mnene W. N., (2017) Participatory Identification and Selection of Collections of *Cenchrus ciliaris* in the Southern Rangelands of Kenya. *Proceedings of End of Project Conference, held from 25TH to 27TH April 2017, KALRO headquarters, Nairobi Kenya*

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