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**Presenter Information**

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# Obstacles to the revival of mobile grazing systems in Kazakhstan

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**Key words:** *pastoral tenure; livestock production; land reform; fodder*

## Abstract

Livestock mobility was an essential characteristic of Kazakh livestock production systems, allowing animals to take advantage of spatial and temporal variability in climate and vegetation, optimising forage intake over the year. These systems broke down following the end of the Soviet Union. In this paper we examine the extent and determinants of the recovery of mobile livestock husbandry in south-eastern Kazakhstan, using surveys and semi-structured interviews with livestock farmers and rural households (holding livestock but not registered as farms). We find positive relationships between livestock holding size and probability of mobility. Winter pastures are particularly important for large farms, with households and smaller farms more dependent on supplementary fodder. The major formal property right over pasture is the long-term leasehold, allocated by auction and associated with significant transaction costs. Leasehold markets function poorly, so farms use a combination of leasing, subleasing and short-term contracts with local authorities to assemble the pastoral resources they need. Few farmers conduct more than a simplified summer-winter migration, whilst around 30% of farms and 70% of households (which own the bulk of livestock) are entirely sedentary, staying on over-used village pastures all year round. Many of these producers express a desire for improved pasture access. The 2017 Law on Pastures introduced district-level pasture use planning, with promotion of mobility and allocation of remote pastures to those with poor access. But the Law does not include new land tenure mechanisms appropriate for small producers (owning few livestock and without leaseholds) which can be employed to realise this goal. Moreover, most pastures are already leased. We discuss options for grazing system management which may simultaneously increase the economic contribution of pastures, improve their condition and reduce rural inequalities created by disparities in access to resources.

## Introduction

Kazakh livestock production systems traditionally used mobility to take advantage of spatial and temporal variability in vegetation and climate, optimising forage intake over the year. The Soviets built on these systems, allocating separate pastures for summer, winter and autumn/spring (Robinson et al. 2016). In the 1990s migratory systems broke down, but have re-emerged in recent years, with benefits for pasture condition, animal weight gain and farm profitability (Alimaev et al. 2008, Issayeva and Bakhralinova 2020, Kerven et al. 2004, 2016, Mirzabaev et al. 2016). Yet many pastures remain underused, whilst those around settlements are often degraded (Alimaev et al. 2008, 2015). The studies cited here, which focussed on sheep husbandry, suggest that mobility can largely be predicted by farm scale and that collective herding institutions have not created the economies of scale required for small herders to reach distant pastures. We ask whether the same patterns apply to cattle production in a vertical transhumant system, examining the extent to which different producers are able to follow migratory systems and the land access arrangements which they use to do so. The 2017 Law on Pastures was designed to improve pasture management through greater use of seasonal pastures. Whether the provisions of this law can be implemented given underlying land tenure arrangements is discussed in the context of the study site.

## Methods and study site

The study site included the eastern half of Enbekshikazakh district and Raiymbek district (Fig. 1), which host migratory routes, many of which have existed for centuries, between alpine summer pastures and wintering areas on south-facing slopes or plains (Ferret 2018). A survey on livestock production systems was applied to 200 registered individual farms and 50 households (holding livestock but ineligible for long term land leases). Farms were selected from lists using two-stage cluster sampling and households by random visit in the sampled villages. The relative weights of households and farms in overall livestock inventories are not reflected in the sample, so we present this using district statistics. For analysis, farms were split into four quartiles on the basis of cattle ownership. In-depth interviews were conducted with a subset of twenty livestock producers from the survey, district officials; staff of the provincial Land Resources Department, an employee of the Institute of Livestock and Fodder who contributed to the 2017 law, and the director of an NGO piloting approaches for its implementation.

Figure 1. The study site



## Results

### Livestock ownership

Livestock ownership follows a lognormal distribution, with many producers owning small numbers of animals and a small number having large herds (Table 1). Ownership of other stock (for example sheep and goats) correlates strongly with cattle holdings, as few farms specialise in a single species (Table 1). Mean cattle ownership amongst households is similar to that of smaller registered farms, but the total cattle population held in households is much larger.

Table 1. Livestock ownership, land access and fodder provision amongst households and farms

Variable means (survey sample)	Household (HH) or farm cattle ownership quartile (Q)					Mean all Farms	
	N	HH	Q1	Q2	Q3		Q4
		50	56	49	45	50	200
Cattle (head) †		9	8	14	24	85	33
Cattle (head, range)		1-39	3-10	11-18	19-30	31-395	3-395
Sheep & goats (head)		20	36	51	82	363	132
Cropland (ha)		1.2	3.5	12.3	5.9	21.4	11
Roughage (kg/head/yr)*		1709	1990	1572	1260	1005	1477
Concentrate (kg/head/yr)*		412	164	236	118	160	170
<b>Total cattle population††</b>		<b>72,577</b>	-	-	-	-	<b>42,357</b>

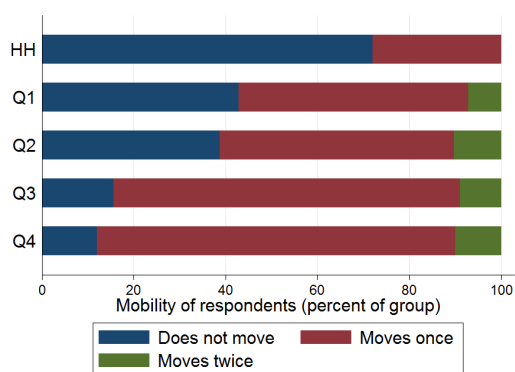
Source: 2018 farm survey; † Variable used to create quartile; \* head of cattle; †† In the entire study site, district statistics

### Mobility and herd size

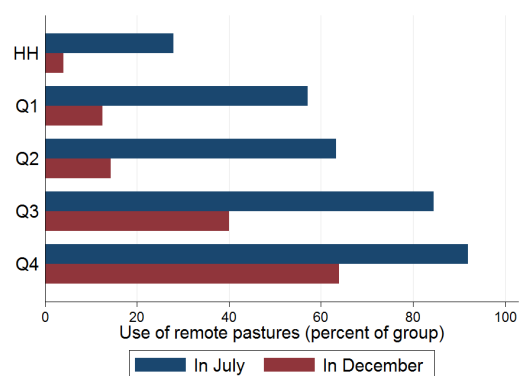
Herd size is a major determinant of mobility, with larger producers more likely to move at least once over the year (Fig. 2a). Whilst all mobile producers use remote pastures in summer, a much smaller proportion use such pastures in winter, with most returning to village grazing areas in that season (Fig. 2b).

Figure 2. Indicators of seasonal pasture use by households (HH) and farms (Q1-Q4)

#### (a) Movement



#### (b) Use of remote pastures in July and December

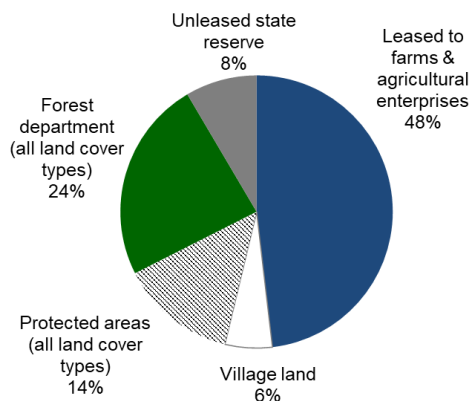


One reason for this could be that, in winter pastures, capital investments in houses and barns are required (Kerven et al. 2016). These outlying bases are located in areas where climatic conditions and vegetation are suitable for winter grazing (Ferret 2018). Located on average around 10km from settlements (although some are much further away), stock may be based there for three seasons, or all year around in a few cases. Summer pastures are on average 45km (and up to 200km) from settlements and here temporary accommodation such as yurts can be used. Only 10% of farms move three times, using autumn/spring pastures in addition to summer and winter areas, following Kazakh tradition and Soviet scientific pasture management norms (Fig. 2a). Differences in pasture access have consequences for winter fodder provision, and may explain the negative relationship between cattle ownership and annual weight of roughage provided per head of cattle by farms (Table 1). Households provide on average 2.5 times more concentrate per head than farms and purchase a larger proportion of the fodder they provide, due to poorer access to arable land.

### Property rights

The major formal mode of agricultural land access in Kazakhstan is the 49-year lease from the state. Some pastures accessed in this way represent land shares received through restructuring in the mid-1990s or by application just afterwards. However, such leases are currently allocated by auction, which all but excludes smallholders due to conditions for participation, bureaucratic hurdles, and cost. Survey data suggest that long-term lease of state lands is the most frequent mode of access, but by no means the only one (Table 2). Households and smaller farmers are most likely to sublease from other farmers, although this is illegal, whilst short-term lease of Forestry Department land in summer is common amongst larger farmers. As-yet unleased ‘state reserve land’ is used informally and some parts of this have been set aside for common use, particularly in Enbekshikazakh district. In winter, 49-year leaseholds dominate: as the need for housing in these areas increases the importance of tenure security, whilst forest and reserve lands are rare in wintering areas.

Figure 3. Pastureland in Raiymbek district



Source: Raiymbek district statistical department. Forest Department and protected areas are predominantly pasture.

Table 2. Modes of remote pasture access by household and cattle ownership quartile (Q)

Variable		HH	Q1	Q2	Q3	Q4	All farms
N		50	56	49	45	50	200
Summer	Leases state pastures	8%	21%	35%	38%	38%	33%
	Subleases pasture	12%	16%	12%	7%	4%	10%
	Uses state reserve land / common reserve areas	6%	9%	8%	9%	26%	12%
	Leases from forest department	2%	11%	8%	31%	24%	18%
Winter	Leases state pastures	0%	13%	10%	29%	42%	23%
	Subleases pasture	0%	0%	0%	4%	0%	1%
	Uses state reserve land / common reserve areas	0%	0%	4%	4%	18%	7%
	Leases from forest department	4%	0%	0%	2%	4%	1%

Source: 2018 farm survey. Difference with 100% is made up by farms and households not using remote pastures.

In Raiymbek district, of lands available for 49-year leasehold (sum of state reserve and already-leased lands in Fig. 3), 85% have already been leased to producers and the remainder is state reserve land, much of which is poorly accessible. Six percent of lands presented in Fig. 3 are designated as village land, available for common use (the equivalent figure is 12% nationally). It is here that sedentary households and farms graze their animals. In our sample, 66% of cattle held in households and 15% of those in farms are sedentary (with figures similar for other stock). Cattle held in households comprise 60% of the total, with farms accounting for 35% (Table 1). Application of our estimates of sedentarity rates in farms and households (Fig. 2) to these numbers suggests that about half of all cattle in the study area are held on village lands all year round. Yet, whilst some owners prefer to keep livestock at home, especially dairy animals, almost 40% of households and 20% of farms in Q1 desire greater access to summer pasture. Reasons given by respondents for lack of access to this resource included availability (already leased), physical barriers, and (for households) lack of legal rights. Costs of herding and pasture lease were considered less important.

### The 2017 Law on Pastures: Implications for grazing access

The 2017 pasture law was introduced to resolve the kinds of misbalances in grazing pressure documented in this paper (Alimaev et al. 2015). It introduces the concept of district-level pasture use planning and the establishment of pasture users’ associations (PUAs). Plans should include cadastral boundaries, infrastructure, water sources, a livestock migration schedule, and indicate ‘allocation’ of distant pastures to livestock owners lacking pasture. However, the Law does not specify new land tenure mechanisms. The reference remains the 2003 Land Code, of which the most commonly employed modality of access is the 49-year leasehold, allocated through procedures unrelated to the type of ecosystem-level pasture management which the law attempts to instate. Where land is already leased, there are few options for pasture use planning. Large areas of leased pasture are unused or underused (Ministry of Agriculture of the Republic of Kazakhstan 2018), yet it is difficult to transfer contracts between farmers or even return land to districts for re-allocation. The national government plans imminent expropriation of ‘inefficiently’ used land – a process perhaps supported by clauses in the 2017 law allowing expropriation upon absence of grazing for two years,

or at grazing pressures less than 20% of the maximum permissible. This process, if it can be accomplished, may free up new lands but also risks arbitrary land seizures. Expropriated lands may be re-allocated by auction, and thus unlikely to be available to small producers. Unleased state reserve land (Fig. 3.) can be used informally, but these areas are often distant from settlements and poorly served by infrastructure. The allocation of reserve land for common use, as observed in Enbekshikazakh district, could be one solution if applied to newly expropriated lands. But the overall rate of seasonal mobility amongst farms and households in this district is no higher than in Raiymbek and, as elsewhere, this land is used predominantly by large producers (Table 2). Possible explanations include the limited area of this land in relation to demand (mentioned by respondents), or lack of collective herding institutions to enable their use by smaller producers. Such systems do exist on village pastures, where producers pool animals and herd on a rota basis. In summer pasture, self-herding or hiring of professional shepherds is more common, but around 30% of mobile respondents share herding in some way.

## Discussion

Economies of scale and ability to access formal land rights mean that mobile livestock husbandry is most common amongst larger farms, which are thus less reliant on winter supplements than small producers. Collective herding institutions and commonly used remote pastures do exist, but are not sufficient to promote mobility amongst households and small farms. Planned re-allocation of underused leased pasture may improve availability, but unless modalities of access other than leasehold auction can be employed, it is unlikely that small producers will benefit. Measures to improve pasture management could include: increasing fluidity of leasing markets through easier transfer or division; legalisation of subleasing; linking of leasehold allocation procedures to pasture use planning; improving roads to and infrastructure in pastures, and setting aside a greater proportion of reserve land for non-leaseholders. The PUAs foreseen in the Law on Pastures could build on existing institutions to support small producers to access pasture. Decentralised planning processes should support identification of locally appropriate solutions.

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