NOMADIC STUDIES

RESEARCH ARTICLE

A Quantitative approach to Kazakh nomadic agriculture

Land use in the Ural, Turgai, Akmola, and Semipalatinsk Regions (1890s–1910s)

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This article reconstructs grain harvest volumes among Kazakh nomads across four regions (Uralsk, Turgay, Akmola, and Semipalatinsk) during the late nineteenth and early twentieth centuries, utilizing statistical data from the historical source 'Materials on Kyrgyz (Kazakh) Land Use'. Furthermore, the study converts these agricultural metrics into a standardized livestock (sheep) equivalent per 'conventionally able-bodied' individual.

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Could pastoralists achieve economic self-sufficiency in a nomadic environment solely through agricultural production?

The phenomenon of agriculture among nomadic populations, particularly the Kazakhs, has long attracted scholarly attention. By the turn of the twentieth century, a substantial segment of the Kazakh nomadic population was engaged in crop cultivation. While this did not signify a widespread transition to a settled lifestyle, the practice of farming was empirically well established.

The historical districts (*uezds*) under investigation in this study fall into three distinct categories based on the proportion of farming households:

- **Group I:** Districts where a majority or absolute majority of households practiced agriculture, including Aktyubinsk (95 per cent), Temir (82 per cent), Kustanay (77 per cent), Ust-Kamenogorsk (70 per cent), Zaisan (63 per cent), and Akmola (61 per cent).
- **Group II:** Districts with substantial agricultural engagement, comprising Semipalatinsk (49.5 per cent), Lbishchensk (47 per cent), Atbasar (43 per cent), Petropavlovsk (31 per cent), Pavlodar (24 per cent), Irgiz (22 per cent), Turgay (21.8 per cent), and Kokchetav (21.7 per cent).
- **Group III:** Districts with minimal grain cultivation, namely Karkaraly (14.5 per cent) and Omsk (3 per cent).

Inevitably, regional variations meant that individual households, settlements, and entire *volosts* (administrative sub-districts) engaged in little or no farming. For instance, in the Inder *volost* of Lbishchensk district (Uralsk region), only 4 out of 768 households cultivated crops, while in Kyzylzhar *volost* of the same district, only 9 out of 992 did so. Such instances were far from isolated: in seven of the fourteen *volosts* in Karkaraly district, agricultural participation ranged between just 0.1 per cent and 7.7 per cent. Even within districts where most nomads farmed, specific *volosts* remained overwhelmingly pastoral.

Households producing surplus grain sold or bartered their harvests for other goods, primarily livestock. Conversely, non-farming households traded livestock to obtain essential grain. Although grain transactions were frequently calculated in rubles, barter exchange remained widespread throughout the steppe. These barter transactions necessitated a standardized unit of value, a role fulfilled by livestock within nomadic society. Specifically, as contemporary sources observed, 'the sheep served as the equivalent of money among nomads' (Dobrosmyslov, 1893, p. 59).

Materials on Kyrgyz (Kazakh) Land Use (MKZ) represents a foundational corpus of cadastral and statistical data compiled in the late nineteenth and early twentieth centuries. The compilation of this source was directly driven by the colonial policy of the Russian Empire: the escalating peasant resettlement movement from European provinces to Kazakhstan required comprehensive surveys of the land resources and economic structure of the steppe regions. Between 1896 and 1915, dedicated statistical expeditions surveyed the territory of Kazakhstan and adjacent areas, with the primary goal of inventorying land suitable for arable farming in order to allocate it to the imperial Resettlement Fund. Beyond assessing land availability and quality, the research programme gathered extensive statistical data covering virtually every aspect of nomadic life. Specifically, the survey recorded the following parameters:

- **Demographics:** Total population, meticulously disaggregated by age and sex.
- **Livestock Breeding:** Herd size and species composition, alongside analysis of losses due to climatic extremes or predation.
- **Socio-Cultural Parameters:** Literacy rates and housing structures (both portable yurts and permanent dwellings).
- **Economic Activity:** Level of agrarian involvement alongside auxiliary pursuits such as hunting and fishing.

These extensive expeditions yielded multi-volume statistical publications across most districts. Today, these materials offer an invaluable empirical repository for quantitative and qualitative analyses of Kazakhstan's socio-economic history during the period in which they were produced.

The practice of agriculture among Kazakh nomads has been examined to varying extents by nineteenth- and twentieth-century scholars, including Levshin (1832), Kaufman (1896), Galuzo (1965), Rumyantsev (1910), Polferov (1896), Dobrosmyslov (1893), Tolybekov (1971), Masanov (1995), Kanyashin (2014, 2017), and others such as L. Meyer, P. G. Kuznetsov, P. A. Khvorostansky, and F. A. Shcherbina. In the late nineteenth century, Polferov (1896) published an essay titled 'Agriculture in the Turgay Region' that detailed sowing, ploughing, harvesting, and threshing techniques among nomadic Kazakhs in Turgay. Later, Suleimenov (1963) devoted a chapter in his study 'The Agrarian Question in Kazakhstan…' to pastoral farming, examining agricultural activity at both the district and *volost* levels and analysing the commercialization of crop yields. Similarly, Galuzo (1965) examined agrarian structures in southern Kazakhstan from the mid-nineteenth to early twentieth centuries,

highlighting the regional transition toward a combined pastoral-agricultural economy.

The empirical foundation of the present study relies on cadastral and statistical data extracted from seventeen volumes of *Materials on Kyrgyz (Kazakh) Land Use…* covering seventeen districts across four major regions. This corpus provides access to a rich, hitherto underutilized body of statistical data. Complementing the MKZ, the analysis incorporates official regional surveys of Akmola from the early twentieth century, the *Commemorative Book and Address-Calendar of the Uralsk Region for 1911*, statistical collections on population, livestock, and crop dynamics in the Kazakh ASSR (1880–1922), and *Statistics of the Russian Empire* (Vol. XXVII, 1893, Issue 14: Turgay Region). Key international travel accounts and comparative studies include *Journey to Western Siberia* (Finsch & Brehm, 1882), which documents Kazakh wheat and barley cultivation, and *Journey from Orenburg to Bukhara* (Eversmann, 2023), which records irrigation canal construction and barley farming. Works compiled in *German Researchers in Kazakhstan* – including studies by Hellwald (2006), A. Vámbéry, and N. Witsen – provide qualitative observations on Central Asian nomadic life; notably, Hellwald (2006) observes that impoverished nomads adopted farming only out of dire necessity. Furthermore, Demko (1997), in his monograph *The Russian Colonization of Kazakhstan (1896–1916)*, demonstrates that while focus centred on Russian and Ukrainian settlement, most Kazakh nomads produced insufficient grain to meet household consumption requirements.

Methods

Following the administrative-territorial reforms of 1867–1868, the territory of modern Kazakhstan was divided into six regions: Uralsk, Turgay, Akmola, Semipalatinsk, Syr Darya, and Semirechye. As noted above, this article examines agriculture among the nomads of the Uralsk, Turgay, Akmola, and Semipalatinsk regions. We will cover the Syr Darya and Semirechye regions in a separate publication.

At the beginning of the 20th century, livestock breeding maintained its status as the dominant sector of the regional economy, despite the increasing role of agriculture in the structure of economic activity. Small livestock held key significance in the composition of herds, although distinct regional specificities can be observed. For example, in the Zaisan district, sheep breeding was predominant, accounting for up to 80 per cent of the total livestock population. In the Semipalatinsk,

Karkaraly, and Ust-Kamenogorsk districts, the share of small livestock was somewhat lower, varying between 66–70 per cent.

The highest indicators for the development of horse breeding and cattle breeding were recorded in the Pavlodar and Omsk districts. The share of horses in these regions was 23.8 per cent and 36.2 per cent, respectively, while the share of cattle was 24.1 per cent and 26.3 per cent (*Materialy Po Kirgizskomu Zemlepol'zovaniyu*, 1902b; *Materialy Po Obsledovaniyu Khozyaistva*, 1913a).

An analysis of food security reveals significant interregional variability in per capita flour consumption. The lowest rates were recorded in the Omsk (4.9 poods) and Karkaraly (5.92 poods) districts.[1] In the Zaisan and Kokchetav districts, this figure averaged 6.7 poods; in Semipalatinsk, 7.2 poods; in Ust-Kamenogorsk, from 7.25 to 9 poods. In traditionally grain-growing areas, such as the Kustanay and Aktyubinsk districts, consumption reached 8.22 and 5.46 poods per person, respectively. The average value across eight districts was approximately 6.6 poods per person, equivalent to about 40 poods for a family of six. At the same time, extreme forms of differentiation were noted: from wealthy households in the Zaisan district (18 poods per person) to low-income households in the Omsk district, where consumption was only 2.4–3.4 poods per person.

Meat consumption levels also demonstrated substantial fluctuations. On average, per capita consumption varied from 5 to 7 poods of meat per year (30–40 poods for a family of 6). Broken down by district, the indicators were distributed as follows:

District	Average Meat Consumption (poods)
Semipalatinsk	10.5
Zaisan	10.3
Akmola	6.8
Omsk	6–7

Comparative analysis reveals a clear correlation between local economic patterns and dietary composition. In Omsk district, where overall consumption of basic foods totaled 11–12 poods, meat predominated at 60 per cent compared to 40 per cent plant-based foods. Conversely, in Kustanay district, overall consumption

[1] The pood is a former Russian measure of weight equivalent to approximately 16.38 kg.

reached 17.6 poods with a largely plant-based diet, where flour accounted for 61 per cent and meat only 39 per cent.

The numerical ratio between traditional nomadic populations and those transitioning to sedentarism or secondary industries was examined by Tolybekov (1971). His data indicate that by the early 20th century, out of a total Kazakh population of roughly 4 million, only 0.8–1 million were fully nomadic pastoralists depending entirely on livestock breeding for their livelihood. He characterized the remainder of the population as either semi-nomadic or settled Kazakhs. However, this issue requires additional critical analysis and investigation. The existence of individual households, volosts and districts where agriculture was virtually absent points to the preservation of significant pockets of the traditional nomadic economy, which calls into question the unambiguity of Tolybekov's estimates.

To clarify why livestock is converted into sheep units, Kanyashin (2017, p. 22) notes: 'Given that sheep comprised 60 per cent of the herd structure across the Kazakh nomadic economic region, it is more appropriate to convert all domestic livestock into small livestock units.' To establish the minimum herd size necessary for subsistence, scholars estimate that roughly 30 sheep per person per year were required merely to maintain a minimal level of subsistence in a nomadic environment (Kanyashin, 2014, p. 19; Masanov, 1995, p. 205).

However, this baseline represents total livestock converted into sheep units. It is equally important to determine the equivalent in sheep required per person for grain consumption. Based on grain consumption data across the Irgiz, Zaisan, Atbasar, and Semipalatinsk districts, our calculations indicate that an individual required the equivalent of 2 to 4 sheep per year to procure necessary grain crops (discussed in detail below). Historical research by Masanov (1995) underscores that grain purchases were vital to Kazakh nomadic consumption patterns, with total purchases corresponding directly to household size and wealth:

- **Consumption norms:** Minimum per capita expenditures for grain averaged 3 head of small livestock per year.
- **Household level:** For a household of 6–8 people, annual grain costs ranged between 15 and 18 sheep.

These figures reflect only a basic subsistence level. For wealthier households, these requirements were substantially higher—often exceeding the subsistence baseline by an order of magnitude.

The methodology used in *Materials for the Study of Kazakh Land Tenure* (MKZ) to calculate grain yields also warrants detailed examination. The MKZ employed two distinct metrics: yield in poods per *desiatina* and seed yield ratios (poods harvested per pood sown). In the MKZ volumes for the Karkaraly and Semipalatinsk districts, sown grain was recorded in poods, whereas most other districts reported yields relative to land area (per *desiatina*). This is illustrated by wheat yields in Karkaraly district, where 5,946 poods of seed were sown. In the survey year, the average district yield was recorded as *sam-15* – that is, 15 poods harvested for every pood planted—yielding a total harvest of 89,190 poods. Owing to the absence of precise data on barley and rye yields, the oats calculation formula was applied to estimate their production.

Regarding livestock market prices, source data provide a clear baseline for economic calculations. According to Graham (1916), sheep values during this period fluctuated between 3 and 5 rubles per head. We adopt a baseline value of 4 rubles per sheep for our calculations.

When analysing resource allocation per capita, a simplified approach dividing total sheep-equivalent units by total population offers a rough estimate. However, to achieve greater analytical precision, we adopt the demographic methodology established by Kanyashin (2014), which equates '…two non-working individuals to one working person (men aged 14 to 60 and women aged 12 to 55), regardless of gender…' [p. 19].

Introducing the category of the 'conventionally able-bodied individual' accounts for physiological variations in consumption needs. An adult male requires an estimated 3,000 kcal daily, whereas women, adolescents, and older people require approximately 2,000 kcal. Utilizing this standardized indicator unifies demographic data and avoids redundant calorie calculations across individual age and gender cohorts.

This analytical model refines statistical evaluation: rather than distributing livestock assets uniformly across every inhabitant, herd totals are correlated directly with the number of conventionally able-bodied individuals. This enables an objective assessment of resource energy values (in kilocalories) per labour unit.

Analysis of crop selection within the nomadic agrarian economy demonstrates a clear preference for millet and wheat. Historical sources confirm that these crops dominated production, whereas oats, barley, and rye were cultivated in far smaller quantities (Levshin, 1832, p. 200; Polferov, 1896, p. 21). For example, Eversmann

(2023) noted widespread millet cultivation along the Emba River basin in his travel observations [pp. 25, 27].

Results

The gross grain harvest in Turgay region reached 7,956,598 poods, representing a monetary value of 5,064,782 rubles. Yield dynamics highlight strong climatic dependency: while regional nomads harvested 8,246,164 poods in 1889, production fell sharply to 2,982,379 poods during the drought of 1890. By 1913, Aktyubinsk district recorded a harvest of 3.8 million poods, of which 2.3 million poods were sold.

Converting crop yields into livestock equivalents produces a regional total of 1,266,169.75 sheep, averaging 3.9 sheep per conventionally able-bodied unit. However, district-level data reveal sharp disparities: Aktyubinsk and Kustanay districts recorded 8.22 and 5.46 sheep per able-bodied unit, respectively, whereas Turgay and Irgiz produced only 0.56 and 1.12 sheep. As Kaufman (1896) observed, agricultural development in northern districts surpassed southern districts by a factor of eight to ten.

Determining the subsistence baseline using Irgiz district as an example reveals total grain consumption of 1,030,449 poods (890,387 rubles) against local production of 694,884 poods (374,104 rubles). At 4 rubles per sheep, local production equaled 93,526 sheep, or 1.12 sheep per able-bodied unit. Factoring in purchased grain of 335,565 poods (0.6 sheep equivalent), total consumption reached 2 sheep per able-bodied unit (12 sheep annually for a family of six). Research by Masanov (1995) confirms that a nomadic family exchanged 15–17 sheep for flour annually. Consequently, grain deficits in Turgay and Irgiz districts were offset by livestock sales, whereas Aktyubinsk and Kustanay generated marketable surpluses. The summary regional equation: 7,956,598 poods = 5,064,679 rubles = 1,266,169.75 sheep : 324,264 people = 3.9 sheep per able-bodied person.

Uralsk Region

Gross harvest in Uralsk region (excluding Guryev district) totaled 3,468,230 poods (2,513,336 rubles). By 1913, Uralsk district harvested 5.4 million poods, selling 4 million poods on the market. Millet remained the primary crop. Converted to sheep, total production equaled 628,334 head, or 2.79 sheep per able-bodied person.

District averages ranged from 5.39 sheep in Uralsk to 1.89 in Lbishchensk and 1.8 in Temir.

In Lbishchensk district, 8,435 of 17,939 households (47 per cent) farmed. For farming households, output reached 7 sheep per able-bodied person—four times the district average. Non-farming households obtained grain through livestock exchange. Regional summary equation: 3,468,230 poods = 2,513,336 rubles = 628,334.25 sheep : 225,236.5 people = 2.78 sheep per able-bodied person.

Semipalatinsk Region

Gross harvest reached 4,816,976.4 poods (3,492,848 rubles), equivalent to 873,212 sheep (2.1 sheep per able-bodied person). In Semipalatinsk district, output averaged 3.36 sheep per unit (reaching 15 sheep within active farming households), and 3.65 sheep in Ust-Kamenogorsk. Micro-regional variation was marked: Kuluzhinskaya *volost* recorded an exceptional 17.03 sheep per unit, whereas Sebinskaya *volost* produced only 1.8.

In Pavlodar, Zaisan, and Karkaraly districts, provision stood at 1.003, 2.44, and 0.22 sheep per unit, respectively. The proportion of farming households ranged from 49.5 per cent in Semipalatinsk to 14.5 per cent in Karkaraly. In Zaisan district, one-third of the crop consisted of fodder oats, heightening food scarcity. Summary regional equation: 4,816,976.4 poods = 3,492,848.05 rubles = 873,212.01 sheep : 415,709 people = 2.1 sheep per able-bodied person.

Akmola Region

Akmola region demonstrated the lowest per-capita grain provision across the steppe—2,673,073 poods (838,983 rubles), or 0.76 sheep per able-bodied person. This deficit resulted from extensive land expropriation for peasant settlement, as settler populations in Omsk, Kokchetav, and Petropavlovsk districts rapidly surpassed indigenous Kazakh totals.

District-level calculations reveal:

- **Atbasar uezd:** 31 per cent of households engaged in agriculture. Local production (206,001 poods) provided only 0.7 sheep per able-bodied person. Total flour consumption reached 573,490 poods (equivalent to 674,694 poods of wheat or 134,943.75 sheep). Baseline consumption required 2.33

sheep per person, necessitating supplementary grain purchases of 1.63 sheep per capita.

- **Omsk uezd:** Agricultural engagement hit a regional low of 3 per cent of households (49,630 poods), yielding 0.07 sheep per able-bodied person. The predominance of fodder oats underscores near-total dependence on imported food grain.
- **Kokchetav uezd:** 21.7 per cent of households practiced agriculture (468,592 poods), corresponding to 0.55 sheep per person.
- **Petropavlovsk uezd:** 24.8 per cent of households farmed (919,530 poods), providing 1.25 sheep per person.
- **Akmola uezd:** Recorded the highest agricultural involvement at 61.5 per cent of households (1,029,320 poods), providing 0.98 sheep per person.

Summary regional equation: 2,673,073 poods = 838,983 rubles = 209,745.75 sheep : 273,562 people = 0.76 sheep per able-bodied person.

Discussion

Statistical analysis enables a comprehensive reconstruction of the economic architecture of Kazakh nomadic society at the turn of the twentieth century. In absolute grain production, Aktyubinsk, Kustanay, Semipalatinsk, Lbishchensk, and Ust-Kamenogorsk districts formed the leading tier. A second tier, harvesting over one million poods, comprised Uralsk, Zaisan, Temir, and Akmola districts. Comparing gross harvests with demographic metrics (calculated per conventionally able-bodied unit) confirms this regional hierarchy, establishing Aktyubinsk and Kustanay as primary agrarian donors.

Regional per-capita provision ranked in descending order: Turgay, Semipalatinsk, Uralsk, and Akmola. The surprisingly low standing of Akmola region – which placed last despite its vast *chernozem* belts – warrants particular attention. Empirical evaluation indicates that the minimal grain self-sufficiency of local nomads (0.76 sheep per able-bodied person) and the severe deficit in Omsk district (0.07 sheep) resulted directly from imperial agrarian policy. Expropriating prime arable lands for settler homesteads and state reserves deprived nomadic communities of the resource base necessary for agricultural development. This aligns with the findings of Demko (1997) and A. B. Tursunbaev: confiscating over 40 million *desiatinas* of land

(20 per cent of the total land fund) radically undermined the economic stability of the indigenous population.

Total grain production across the four regions reached approximately 18,914,877.4 poods. Resource distribution, however, was deeply unequal: in 65 per cent of surveyed districts (11 of 17), average grain output fell below half the subsistence baseline. This chronic food deficit compelled nomads to rely on market procurement. Conversely, 35 per cent of districts (6 units) generated commercial surpluses exceeding affluent household requirements by 20 per cent. This economic polarization fostered internal trade and exchange between nomadic regions as well as with Cossack and settler communities.

Grain prices exhibited strong regional and seasonal variations. Lower grain costs in northern districts (Omsk, Petropavlovsk) stemmed from a high density of settler farms creating surplus supply. Using prices from Aktyubinsk district as a benchmark is justified by its position as the region's main agrarian hub, where trade routes converged from remote districts.

The social structure of nomadic agriculture also underwent transformation. Although crop acreage expanded rapidly among impoverished nomads (*zhataks*), middle-income households maintained the highest overall participation in agriculture. This supports the thesis that agriculture functioned not as an alternative to livestock breeding, but as a mechanism for preserving pastoral assets. As F. Antoni and Rumyantsev (1910) observed, adopting the plough was frequently a temporary, forced expedient: having lost their herds, nomads turned to cultivation to accumulate capital before returning to pastoral nomadism. Contrary to Soviet historiography interpreting crop expansion as a voluntary transition to sedentarism, quantitative modelling demonstrates that amidst land expropriation and climate risks, agriculture fulfilled an auxiliary, adaptive role within a unified nomadic economy.

Conclusion

This analysis of the agrarian potential of Kazakh nomadic households at the turn of the twentieth century, based on cadastral data from *Materials on Kyrgyz Land Use*, enables definitive conclusions regarding the nature of regional economic transformation. Quantitative modelling and the conversion of agricultural output into a standardized livestock metric ('sheep-equivalent units') expose the structural inadequacy of crop farming as an independent economic system for most nomadic groups.

The primary finding of this study is the demonstrable deficit of internal grain production across most surveyed districts. For a major portion of the nomadic population, domestic farming failed to supply even basic physiological requirements. This refutes assertions of a mass, economically viable transition of Kazakh pastoralists to settled agriculture during this period. Farming in the steppe functioned not as a replacement for livestock breeding, but as an auxiliary, compensatory mechanism adopted during periods of extreme hardship or herd loss.

Colonial land policy served as the principal catalyst of regional food deficits. Extensive alienation of fertile pastoral and arable lands for Cossack and settler expansion disrupted the established balance of the nomadic economy. Deprived of prime land resources, Kazakh *auls* were constrained within a deficit economy. Consequently, nomadic households entered the market not as competitive grain producers, but as dependent consumers obliged to trade reproductive livestock for essential grain.

Despite minor temporal variations in official statistical records, the broader empirical picture remains clear: regional conditions varied widely, and nomads depended heavily on external grain purchases. Forcible sedentarization policies under conditions of land scarcity resulted not in economic modernization, but in the degradation of nomadic food security. Final quantitative calculations demonstrate that early twentieth-century Kazakh nomadic society suffered a systemic crisis driven by external administrative interference, with agriculture remaining a survival mechanism incapable of underpinning a fundamental economic shift.

Table 1: Grain harvests in the regions of the early 20th century. Calculations by the author.

	Provinces (Oblasts)	**Gross harvest of grain crops (in poods)**
1	Turgay	7,956,598
2	Semipalatinsk	4,816,976.4
3	Uralsk	3,468,230
4	Akmola	2,673,073
	Total	**18,914,877.4**

*Table 2: Number of sheep transferred from grain crops, number of conditionally employed (in parentheses, the actual population) and the number of sheep per conditional worker in the context of counties. * (Kappasov, 2022, p. 224).*

	Uezd names	**Number of sheep**	**The number of conditionally employed, in parentheses of the total actual population**	**Number of sheep per conditional worker**
1	Semipalatinsk	330,917	98,249 (118,498)*	3.36
2	Pavlodar	99,286.75	98,984.5 (132,137)	1.003
3	Zaisan	197,203	80,619.5 (99,443)	2.44
4	Ust-Kamenogorsk	228,469.7	62,496 (76,915)	3.85
5	Karkaraly	17,335.5	78,605 (104,569)	0.22
6	Akmola	71,712	72,840 (93,548)	0.98
7	Atbasar	40,979.75	57,770.5 (72,991)	0.7
8	Kokchetav	32,281	58,335 (72,398)	0.55
9	Omsk	2,708.625	35,128.5 (45,130)	0.07
10	Petropavlovsk	62,064.375	49,489 (66,154)	1.25
11	Kustanay	485,687.5	88,927.5 (112,657)	5.46
12	Turgay	41,490.5	73,621.5 (93,242)	0.56
13	Aktyubinsk	645,465.25	78,512.5 (104,441)	8.22
14	Irgiz	93,526	83,202.5 (105,440)	1.22
15	Uralsk	321,742.25	59,629 (71,801)	5.39
16	Lbishchensk	171,850.75	90,764.5 (115,152)	1.89
17	Temir	134,741	74,843 (94,333)	1.8
18	Guryev	–	No data available	–
19	Mangyshlak	–	No data available	–

Table 3: Grain yield in Ust-Kamenogorsk uezd, Kuluzhunsky volost.

	Names of agricultural crops	Planted poods	Productivity	Gross collection
1	Wheat	9,668.5	15	145,028
2	Barley	19.75	20	395
3	Oats	9,341	20	186,820
4	Millet	546.89	150	82,033
				414,276

*Table 4: The number of sheep in terms of grain harvest in Ust-Kamenogorsk uezd, Kuluzhunsky volost. * (Millet data taken from Materialy Po Kirgizskomu Zemlepol'zovaniyu, 1903a, pp. 30, 45–46). ** (Materialy Po Kirgizskomu Zemlepol'zovaniyu, 1903b, p. 76). *** (Pamyatnaya Knizhka i Adres-Kalendar', 1911, p. 10)*

	Names of agricultural crops	Gross collection	Price per pood (in rubles)	The price of the harvest (in rubles)	Price per sheep (in rubles)	Number of sheep
1	Wheat	145,028	0.80*	116,022	3	38,674
2	Barley	395	0.44**	174	3	58
3	Oats	186,820	0.91***	170,006	3	56,669
4	Millet	82,033	0.50	41,016	3	13,672
		414,276		**327,218**		**109,073**

Table 5: Gross grain harvest by uezds.

	Provinces (Oblasts)	Uezd names	Gross harvest (in poods)
1	Turgay	Kustanay	2,485,167
		Aktyubinsk	4,531,506
		Turgay	245,041
		Irgiz	694,884
2	Uralsk	Uralsk	1,085,379
		Lbishchensk	1,340,483
		Temir	1,042,368
3	Semipalatinsk	Semipalatinsk	1,815,525
		Pavlodar	520,140
		Zaisan	1,058,946.4
		Ust-Kamenogorsk	1,290,215
		Karkaraly	132,150
4	Akmola	Akmola	1,029,320
		Atbasar	206,001
		Kokchetav	468,592
		Omsk	49,630
		Petropavlovsk	919,530

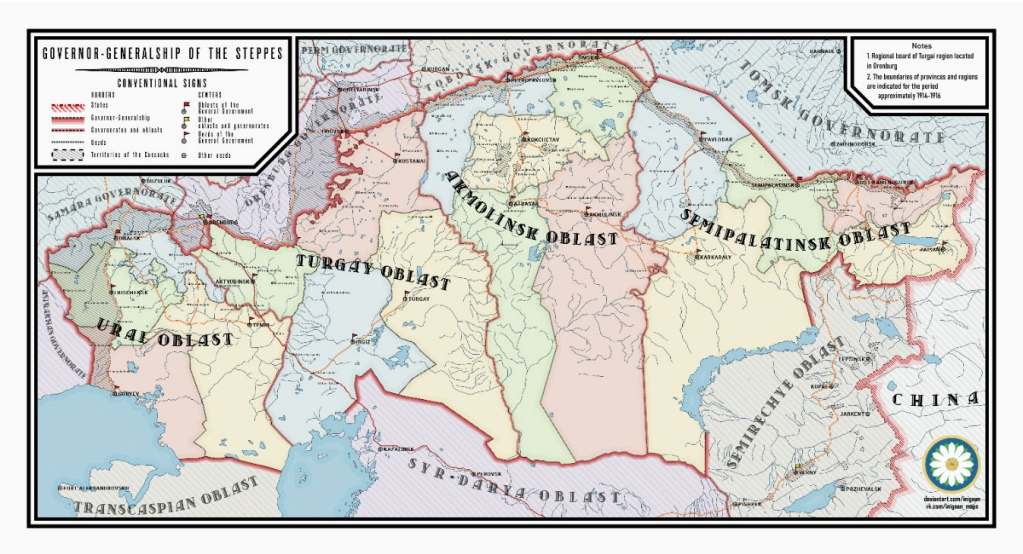

Figure 1: Map of the Ural, Turgai, Akmola and Semipalatinsk Oblasts, also known as the Steppe General-Gubernatorate. Ural Oblast consisted of: Uralsk uezd, Lbishchensk uezd, Temir uezd, Guryev uezd. Turgay Oblast consisted of: Aktyubinsk uezd, Kustanay uezd, Irgiz uezd, Turgay uezd. Akmolinsk Oblast consisted of: Omsk uezd, Petropavlovsk uezd, Kokchetav uezd, Atbasar uezd, Akmolinsk uezd. Semipalatinsk Oblast consisted of: Pavlodar uezd, Semipalatinsk uezd, Ust-Kamenogorsk uezd, Karkaralinsk uezd, Zaysan uezd.

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