Kazakh Research Institute for Livestock and Fodder Production

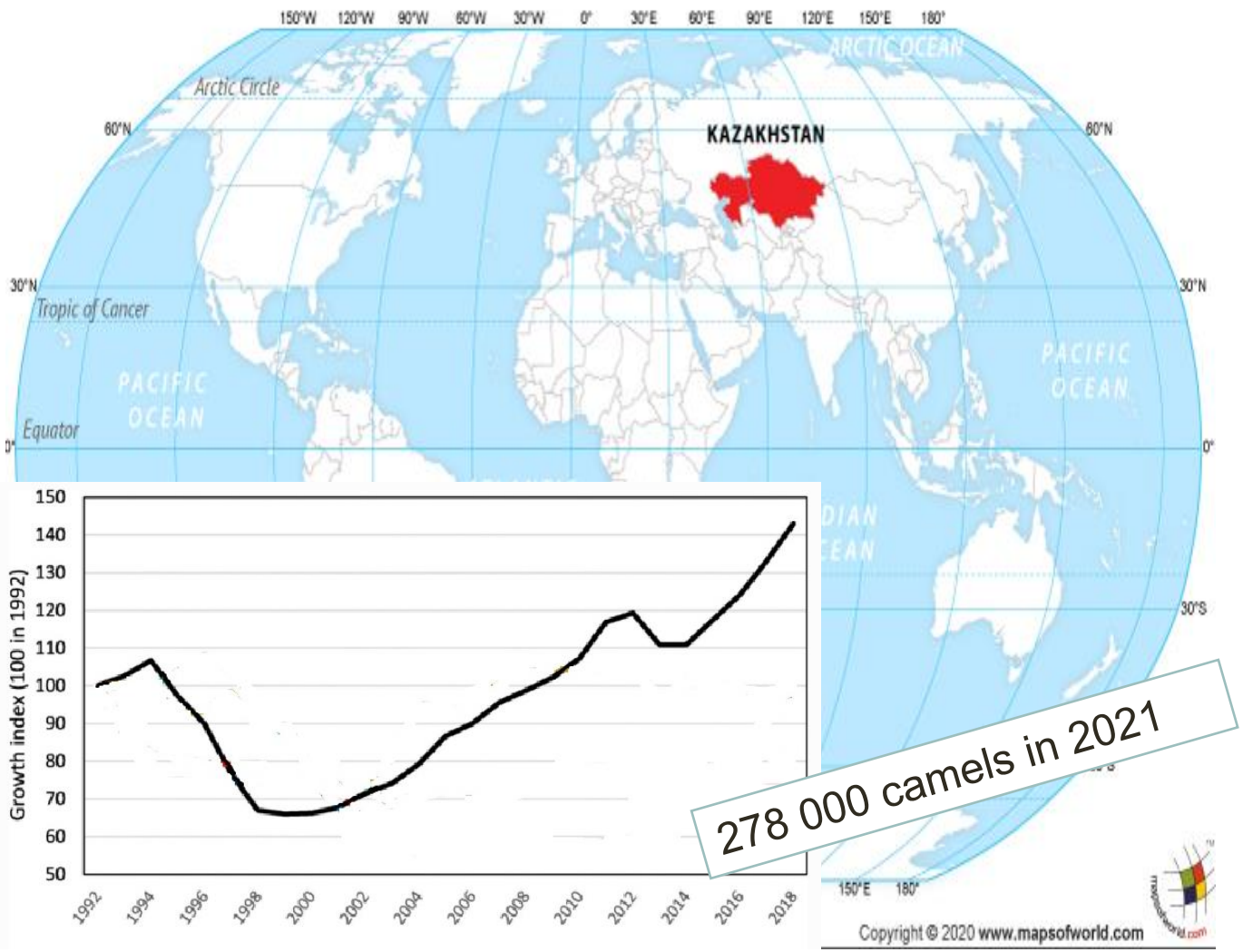
INTERNATIONAL SYMPOSIUM
"THE RISE OF CAMEL MILK MARKETING IN THE MEDITERRANEAN BASIN"
BUSINESS OPPORTUNITIES AND SUSTAINABLE DEVELOPMENT PATHWAYS

Camel milk production system in Kazakhstan

Akhmetsadykova Shynar

15-16 November 2021

Camel breeding in Kazakhstan

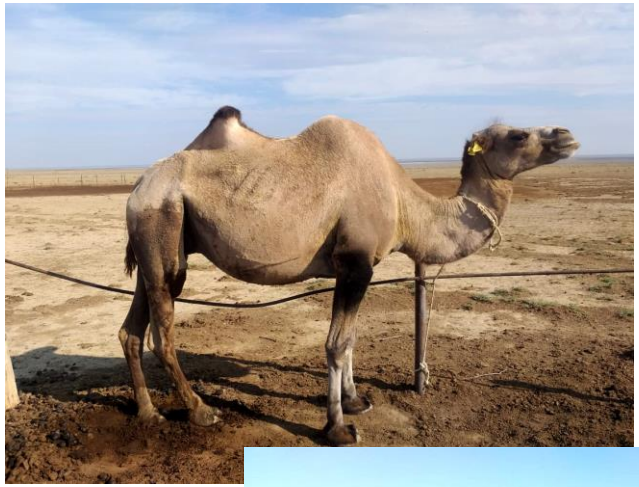


Faye, B. How many large camelids in the world? A synthetic analysis of the world camel demographic changes. Pastoralism 10, 25 (2020). https://doi.org/10.1186/s13570-020-00176-z

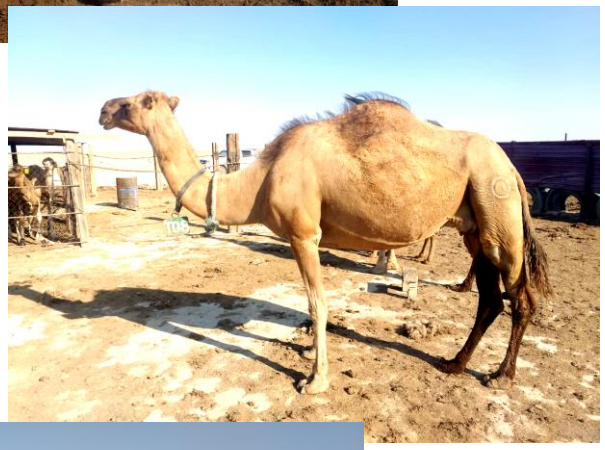
ECOTYPES OF CAMELS IN KAZAKHSTAN

Photo 1. The Kazakh Bactrian camel type Oralbokeilik (Faye B. and G. Konuspayeva, 2018)

Photo 2. The Kazakh Bactrian camel type Kyzylorda (Faye B. and G. Konuspayeva, 2018)



F2- Bal-kospak



F1- Nar-maya

Photo 3. The Kazakh Bactrian camel type Ongtüstik-Kazakhstan (Faye B. and G. Konuspayeva, 2018)

Photo 4. The dromedary camel type Arvana (Faye B. and G. Konuspayeva, 2018)

F2- Bal-kospak

Hybrides (photos by Shertai E., 2021)

THE USE OF CAMELS IN KAZAKHSTAN

Shubat
(https://asiaplustj.info/ru/news/life/food)

Freeze-dried camel milk (atameken.kz)

Balkaimak (ult_dami_kz)

Kurt (https://www.gastronom.ru/recipe/24401/kurt)

Camel meat stew (flagma.kz)

Camel cheese (Konuspayeva G., 2021)

Development of standards camel milk and shubat

- **1970’s** - Standard for camel milk intended for industrial processing and shubat in USSR
- **1997** - Kazakh standards for camel milk intended for industrial (ST RK 166-97) and shubat (ST RK 117-97)
- **2017** - Eurasian Economic Union’s standards for camel milk intended for industrial (ST RK 166-2015) and shubat (ST RK 117-2015)

Standards content...

1 Scope of application

2 Regulatory references

3 Technical requirements

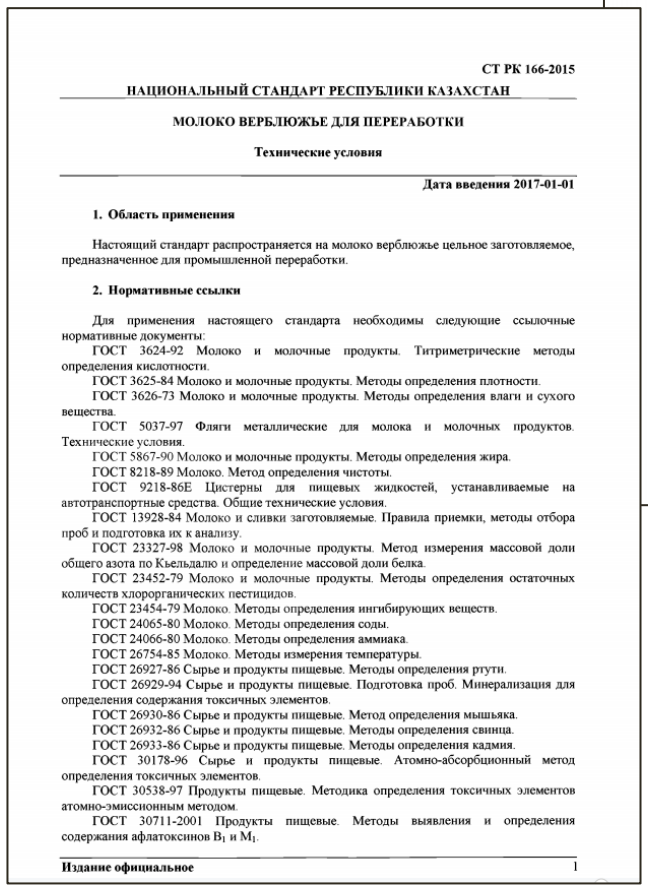
4 Acceptance rules

5 Control methods

6 Labelling and packaging

7 Transportation and storage

8 Manufacturer's warranty



СТ РК 166-2015

НАЦИОНАЛЬНЫЙ СТАНДАРТ РЕСПУБЛИКИ КАЗАХСТАН

МОЛОКО ВЕРБЛЮЖЬЕ ДЛЯ ПЕРЕРАБОТКИ

Технические условия

Дата введения 2017-01-01

1. Область применения

Настоящий стандарт распространяется на молоко верблюжье цельное заготовляемое, предназначенное для промышленной переработки.

2. Нормативные ссылки

Для применения настоящего стандарта необходимы следующие ссылочные нормативные документы:

ГОСТ 3624-92 Молоко и молочные продукты. Титриметрические методы определения кислотности.

ГОСТ 3625-84 Молоко и молочные продукты. Методы определения плотности.

ГОСТ 3626-73 Молоко и молочные продукты. Методы определения влаги и сухого вещества.

ГОСТ 5037-97 Фляги металлические для молока и молочных продуктов. Технические условия.

ГОСТ 5867-90 Молоко и молочные продукты. Методы определения жира.

ГОСТ 8218-89 Молоко. Метод определения чистоты.

ГОСТ 9218-86Е Цистерны для пищевых жидкостей, устанавливаемые на автотранспортные средства. Общие технические условия.

ГОСТ 13928-84 Молоко и сливки заготовляемые. Правила приемки, методы отбора проб и подготовка их к анализу.

ГОСТ 23327-98 Молоко и молочные продукты. Метод измерения массовой доли общего азота по Кьельдалю и определение массовой доли белка.

ГОСТ 23452-79 Молоко и молочные продукты. Методы определения остаточных количеств хлорорганических пестицидов.

ГОСТ 23454-79 Молоко. Методы определения ингибирующих веществ.

ГОСТ 24065-80 Молоко. Методы определения соды.

ГОСТ 24066-80 Молоко. Методы определения аммиака.

ГОСТ 26754-85 Молоко. Методы измерения температуры.

ГОСТ 26927-86 Сырье и продукты пищевые. Методы определения ртути.

ГОСТ 26929-94 Сырье и продукты пищевые. Подготовка проб. Минерализация для определения содержания токсичных элементов.

ГОСТ 26930-86 Сырье и продукты пищевые. Метод определения мышьяка.

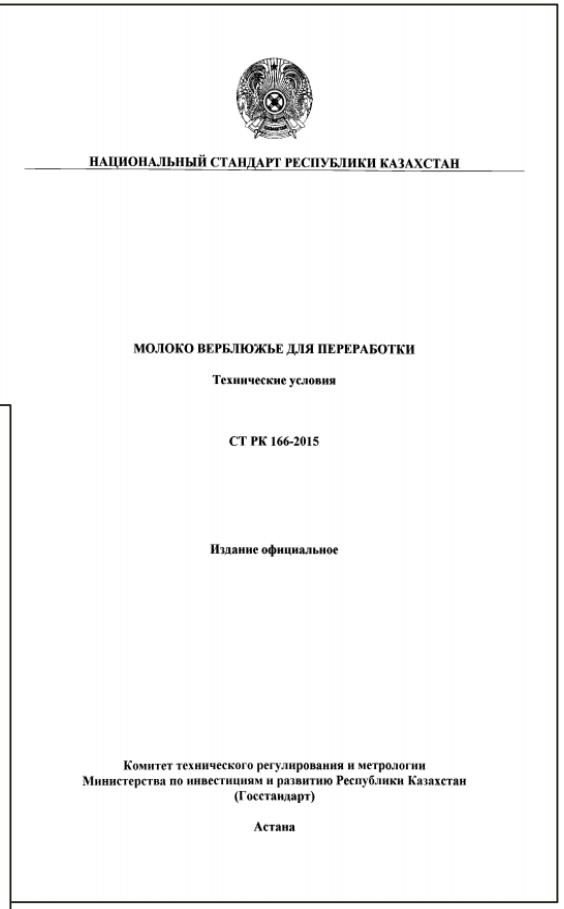
ГОСТ 26932-86 Сырье и продукты пищевые. Методы определения свинца.

ГОСТ 26933-86 Сырье и продукты пищевые. Методы определения кадмия.

ГОСТ 30178-96 Сырье и продукты пищевые. Атомно-абсорбционный метод определения токсичных элементов.

ГОСТ 30538-97 Продукты пищевые. Методика определения токсичных элементов атомно-эмиссионным методом.

ГОСТ 30711-2001 Продукты пищевые. Методы выявления и определения содержания афлатоксинов B_1 и M_1.



НАЦИОНАЛЬНЫЙ СТАНДАРТ РЕСПУБЛИКИ КАЗАХСТАН

МОЛОКО ВЕРБЛЮЖЬЕ ДЛЯ ПЕРЕРАБОТКИ

Технические условия

СТ РК 166-2015

Издание официальное

Комитет технического регулирования и метрологии
Министерства по инвестициям и развитию Республики Казахстан
(Госстандарт)

Астана

Standards content...

1 Scope of application

ST RK 166-2015 - This standard applies to whole camel milk intended for industrial processing for shubat.

ST RK 117-2015 - This standard applies to the fermented milk product shubat, produced from whole pasteurized camel milk, by fermenting it with cultures of lactic acid bacteria and milk yeast and intended for direct consumption in food.

Standards content...

2 Regulatory references

State standards:

- Physical and chemical properties;
- Microbiological properties;
- Content of toxic elements;
- Content of antibiotics;
- Rules of acceptance of raw materials;
- Packaging;
- etc...

Standards content...

3 Technical requirements - GENERAL REQUIREMENTS

- Milk must be obtained from healthy animals in farms that are safe for infectious diseases in accordance with the requirements of veterinary legislation and meet the required quality.
- Milk should be fitred and cooled to +4+2°C during 2 hours.
- In agreement with the dairy industry, it is allowed to deliver milk without cooling within one hour after milking.
- Storage of raw milk without cooling for no more than 6 hours.

- Shubat must be produced in accordance with the requirements of this standard according to the technological instructions in compliance with sanitary rules for dairy industry enterprises.
- Product types:

weak - one-day; medium two-day; strong - three-day.

- one-day, intended for direct consumption in food;
- intended for storage from 1 to 3 months.

- Camel milk required to ST RK 166-2015

Standards content...

3 Technical requirements - ORGANOLEPTIC PARAMETERS

Camel milk

Parameters	
Taste and smell	Clean, without extraneous tastes and odors not peculiar to fresh milk
Consistency	Homogeneous, without sediment and flakes
Color	From white to slightly yellow

Shubat

Parameters	
Taste and smell	Pure, fermented, refreshing - specific characteristic of natural shubat, without foreign tastes and odors
Consistency	Liquid, homogeneous, carbonated, foaming
Color	From milky white to slightly yellow

Standards content...

3 Technical requirements - PHYSICAL AND CHEMICAL PARAMETERS

Camel milk

Parameters	ST RK 166-97	ST-RK 166-2015
Mass fraction of fat %, not less	4.0	3.0
Acceptance temperature, °C, no more	10	10
Acidity, T, no more	22.0	17.5
Density, kg/m3, not less	1031	1032
Dry matter content on average,%	-	15
Mass fraction of protein %, not less	-	3.8

Standards content...

3 Technical requirements - PHYSICAL AND CHEMICAL PARAMETERS

Shubat

Parameters	ST RK 117-97	ST RK 117-2015
Mass fraction of fat, %, not less than	4.0	3.2
Acidity, T°	60-140	100 to 150
Mass fraction of alcohol, %, not more than	0.5- 1.2	0.5- 1.2
Phosphatase	Absent	Absent
Temperature at the outlet from the enterprise ° C, no more than	6	4 ± 2

Standards content...

3 Technical requirements - MICROBIOLOGICAL PARAMETERS

Parameters	CAMEL MILK	SHUBAT
Number of mesophilic aerobic and facultative anaerobic microorganisms, CFU/cm	$1x10^5$	$1x10^7$
E. coli bacteria group	Not allowed	Not allowed
Pathogenic microorganisms, including salmonella	Not allowed	Not allowed
S.aureus	Not allowed	Not allowed
L.monocytogenes	Not allowed	Not allowed

3 Technical requirements - Contaminants

Parameters	ST RK 166-97/ST RK 117-97	ST RK 166-2015/ ST RK 117-2015
Pb, mg/kg	0,1	0,1
Cd, mg/kg	0,03	0,03
As, mg/kg	0,055	0,055
Hg, mg/kg	0,005	0,005
Cu, mg/kg	**1,0**	**-**
Zn, mg/kg	5,0	5,0
Aflotoxin B1, mg/kg	not allowed	not allowed
Aflotoxin M1, mg/kg	0,0005	0,0005
Antibiotics of the tetracycline group, mg/kg	0,01	not allowed (<0,01)
Penicillin, mg/kg	0,01	not allowed (< 0,004)
Streptomycin, mg/kg	0,5	not allowed (< 0,2)
Levomycetin (chloramphenicol), mg/kg	**-**	**not allowed(< 0,0003)**
Cs-137, Bq/kg(L)	100	100
Sr-90, Bq/kg(L)	**100**	**25**
Dioxins	**-**	**0,000003 (in terms of fat)**
Melamine	**-**	**not allowed (<1,0 мг/кг)**
Dichlorodiphenyltrichloroethane (DDT) and its metabolites	**-**	**0,05**
Hexachlorocyclohexane (HCH) and its isomers	**-**	**0,05**

Standards content...

Labelling and packaging

- Marking of group packaging, multi-turn and transport,
- the transport package is carried out in accordance state standards with the application of manipulation signs or warning labels "Protect from heating", "Perishable cargo".
- Information about the quantity and gross weight.

- Non-visible inscriptions, including manipulative signs, are applied to insert sheets or presented in any other accessible way.

- The sale of shubat in a retail chain should be carried out in the presence of information data on the nutritional and energy value of 100 g of the product.

- Shubat should be produced in bottles made of polyethylene terephthalate (PET) according to GOST 32686 with a mass capacity of 500 cm^3, 1000 cm^3,5000 cm^3.

Standards content...

Transportation and storage

- Camel milk before being sent to dairy enterprises should be stored at a temperature no higher than (4+2)°C in special rooms for no more than 36 hours (including transportation time).
- Milk is transported in milk tankers according to GOST 9218 or metal flasks according to GOST 5037 with a sanitary passport for it
- Transportation is carried out by specialized vehicles for perishable goods.
- Containers used for transporting milk must be tightly closed, clean, free of damage and rust, disinfected and steam-treated and comply with the requirements
- Cranes, tank hatches and flasks are sealed.
- Mixing of uncooled milk of various milk yields is prohibited. Each tank compartment must be filled by milk of the same quality

- Shubat is transported by specialized vehicles in accordance with the rules of transportation of perishable goods, operating on a specific type of transport and established by the manufacturer
- The shelf life of shubat and its storage conditions from the end of the technological process are established by the manufacturer.

Standards content...

Milk is not accepted if:

- obtained from camels in the first 15 days of lactation (colostrum) and the last 15 days of lactation;
- with the addition of neutralizing and inhibiting substances (antibiotics, disinfectants and preservatives);
- with the smell of chemicals and petroleum products;
- with a residual chemicals amount of plant and animal protection products;
- with putrid, rancid, bitter, musty, moldy, metallic aftertaste and pronounced forage taste and smell;
- from sick or suspected camels.

Standards for other camel milk products

- 2011- ST RK 2117-2015 “National kazakh milk products”

1. Balkaimak
2. Fermented camel milk drink with vegetables extracts/cow milk
3. Cottage cheese from camel milk
4. Cheese from camel milk

- 2019 - ST RK 3386-2019 "Dried camel milk. Technical conditions"

- Humidity,%
- Solubility index
- etc.

Thank you for attention!

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