CRI KAZAKHSTAN
Cooperative Resources International

# GENETICS AS AN INVESTMENT: LONG-TERM IMPACT ON KAZAKHSTAN'S DAIRY INDUSTRY

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Director of CRI-Kazakhstan

# SINCE 1960, MILK PRODUCTION VOLUMES HAVE INCREASED FROM 5,902 KG TO 12,712 KG (BASED ON THE U.S. CDCB DATABASE).

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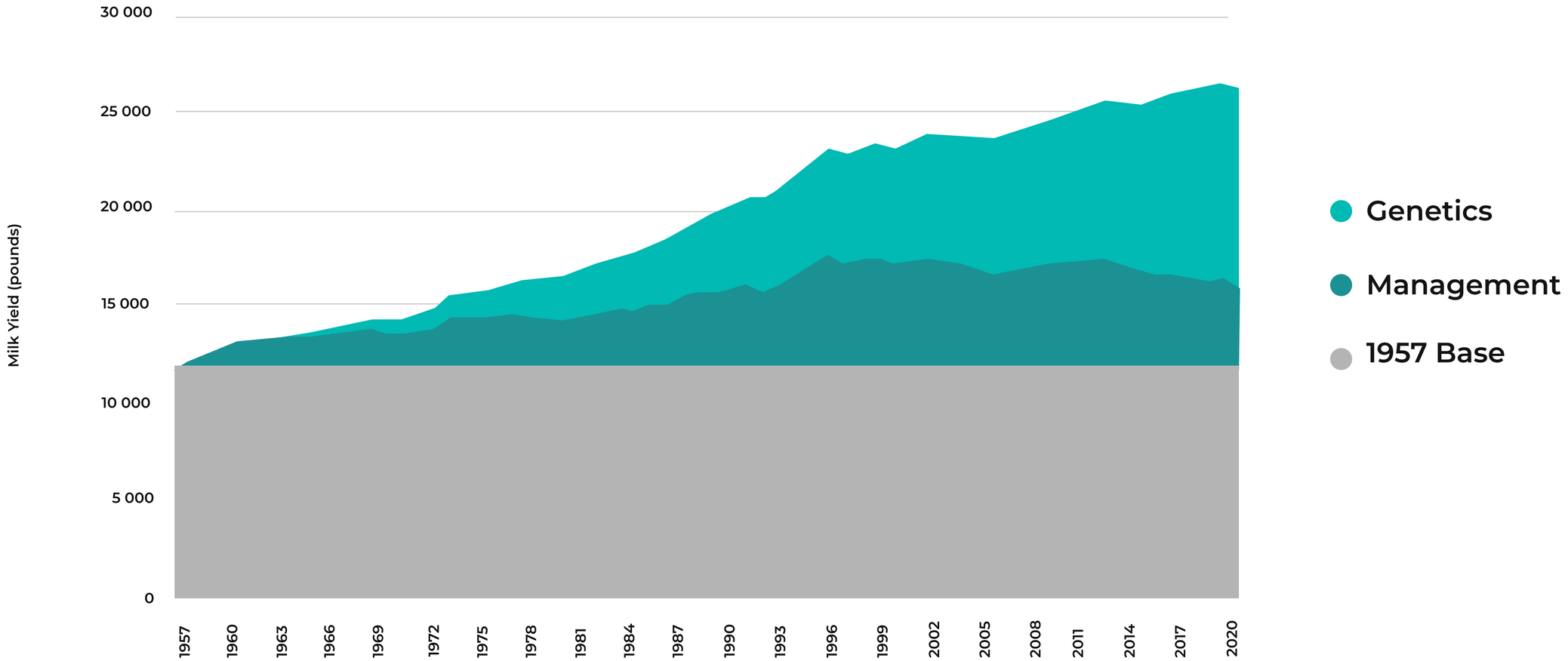
Change in Holstein Milk Production (1957-2022)



# TEN KEY MILESTONES IN DAIRY CATTLE GENETICS OVER THE PAST 50 YEARS

**Doug Wilson**
CEO of "CRI"

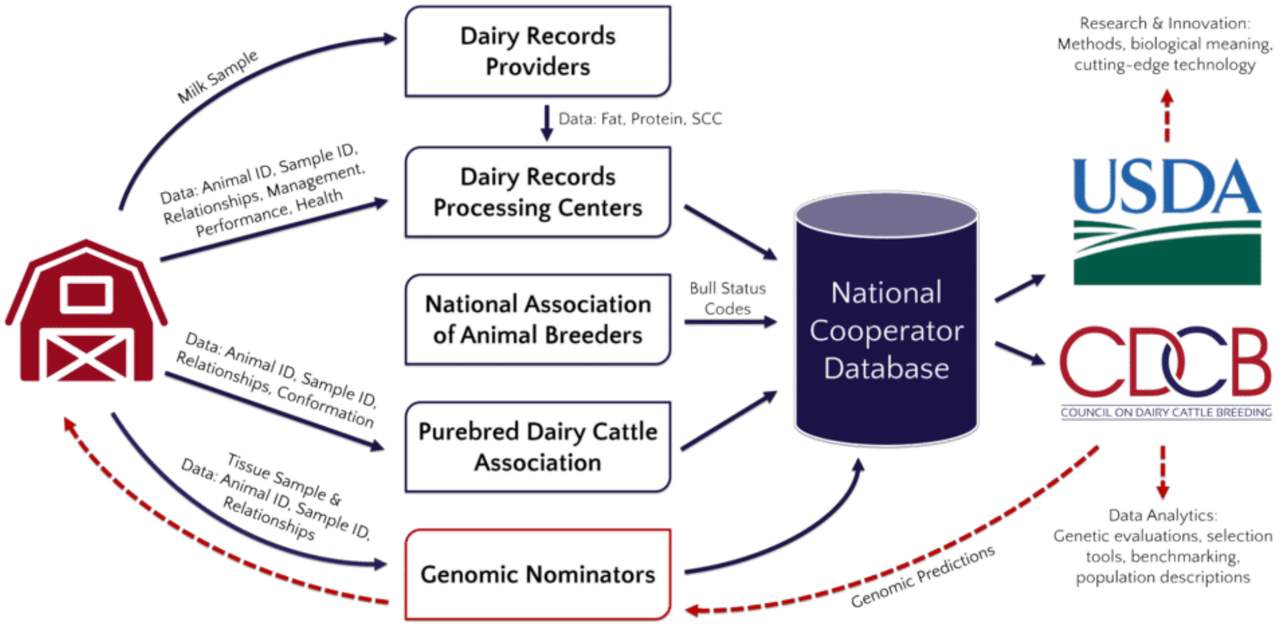
"This is my vision of the 10 most important events in dairy cattle genetics over the past 50 years. During this time, our industry has witnessed incredible changes in genetic programs, discoveries, and progress.

These developments have contributed greatly to the growth and success of dairy farming. But the next decade promises to be truly remarkable, with even greater progress ahead.

1. Genomics
2. Linear Classification
3. Health Traits
4. Sexed Semen
5. Animal Model (BLUP)
6. Protein Evaluation
7. Modified Contemporary Comparison (MCC)
8. Calving Ease
9. Corrective Mating Programs
10. Evaluation of Unregistered Animals

# CENTRALIZED CDCB DATABASE

The U.S. also has a centralized CDCB database. All data is collected in a unified database, with calculations and adjustments performed at the national level, which eliminates subjectivity.
Strict selection standards ensure that only 0.5% of the 1,000 tested bulls are selected for breeding.




Every five years, leading U.S. and global scientists update the CDCB genotype database, which serves as a reference for participants in the global market.
An update is scheduled for this month.

# GENETIC STRATEGY IN THE U.S.

Genomic Evaluation as the Standard
Genomic evaluation has become the standard in the U.S. (they are not afraid to work with haplotypic bulls). The best heifers are inseminated with the best bulls, which gives the best results.

Strategy from 2025 – Focus on Health
Previously, the focus was on productivity, but the industry faced the consequences of low fertility in animals. This led to the initiation of a national reproductive program. Today, the focus is on heifer viability and feed conversion efficiency.

## Need to Win

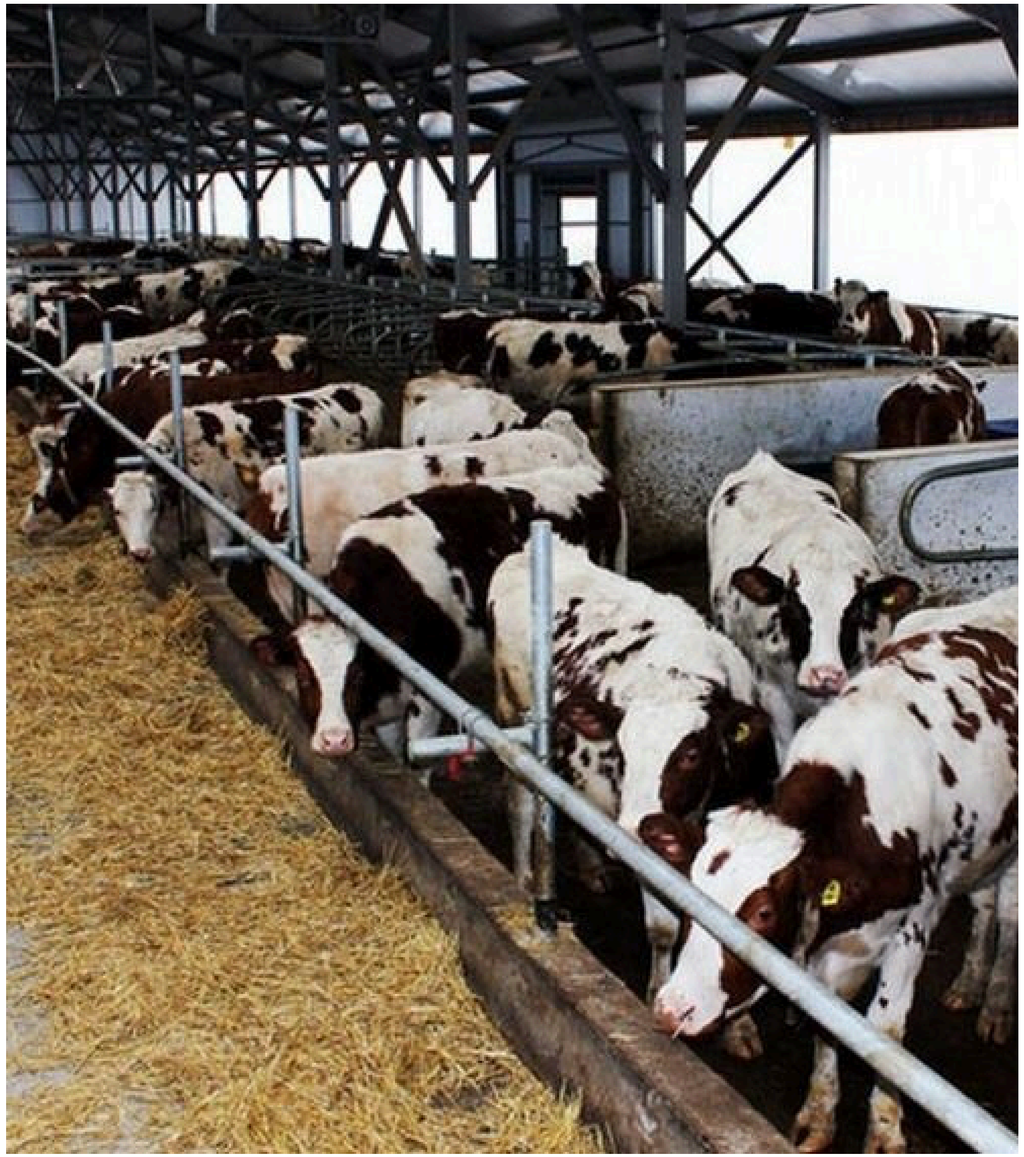
- Longest Living
- Fedest deaths
- Health
- Female fertility
- Refining cow size
- Lifetime energy corrected milk


## Competitive in

- Functional, durable udders
- Production
- Daily production
- Feed efficiency

# EXPERIENCE OF RUSSIA

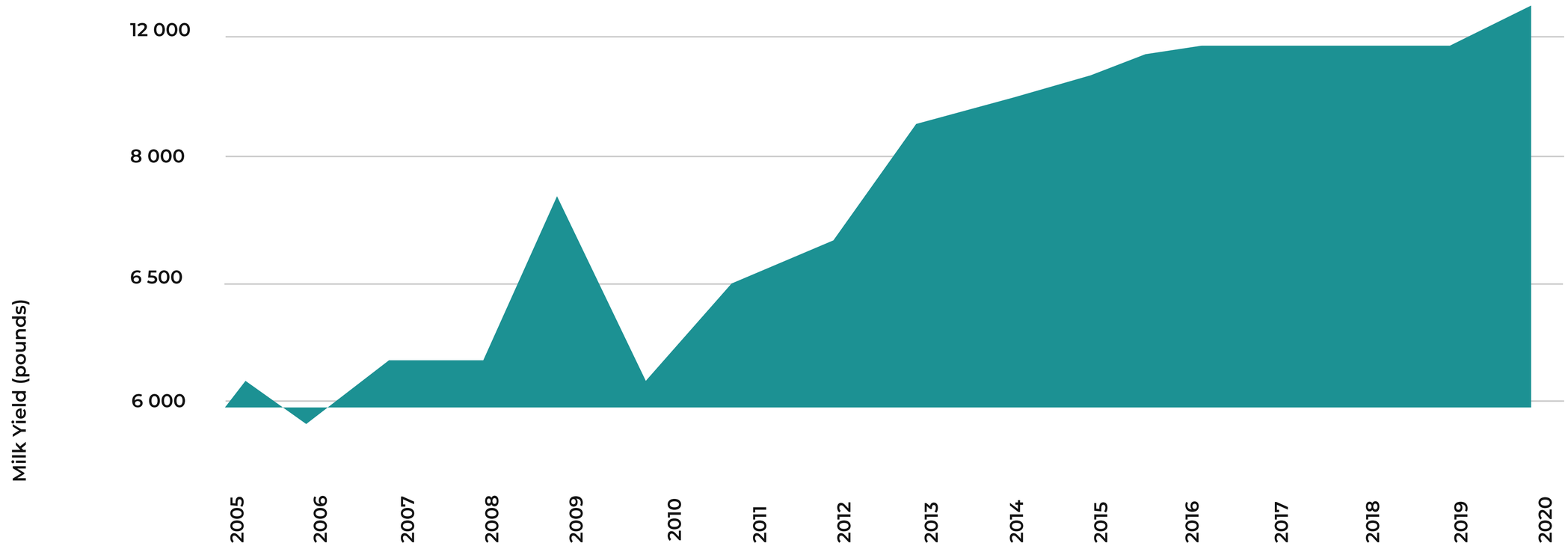
•Russia began its experience 10-15 years ago and has achieved very good results.
• They aim for 39 million tons of milk by 2030.
• Five years ago, 50% of enterprises used high genetics, and now this figure has grown to 70%, according to my unofficial sources.
• For us, Russia is also a reference point (since we are nearby, we can visit at any time to learn from their experience, there is no language barrier, and the relationships with the livestock and genetic communities are very friendly and supportive).
• The active use of sexed semen and now the beef program on problem cows with the goal of extending the lactation period.



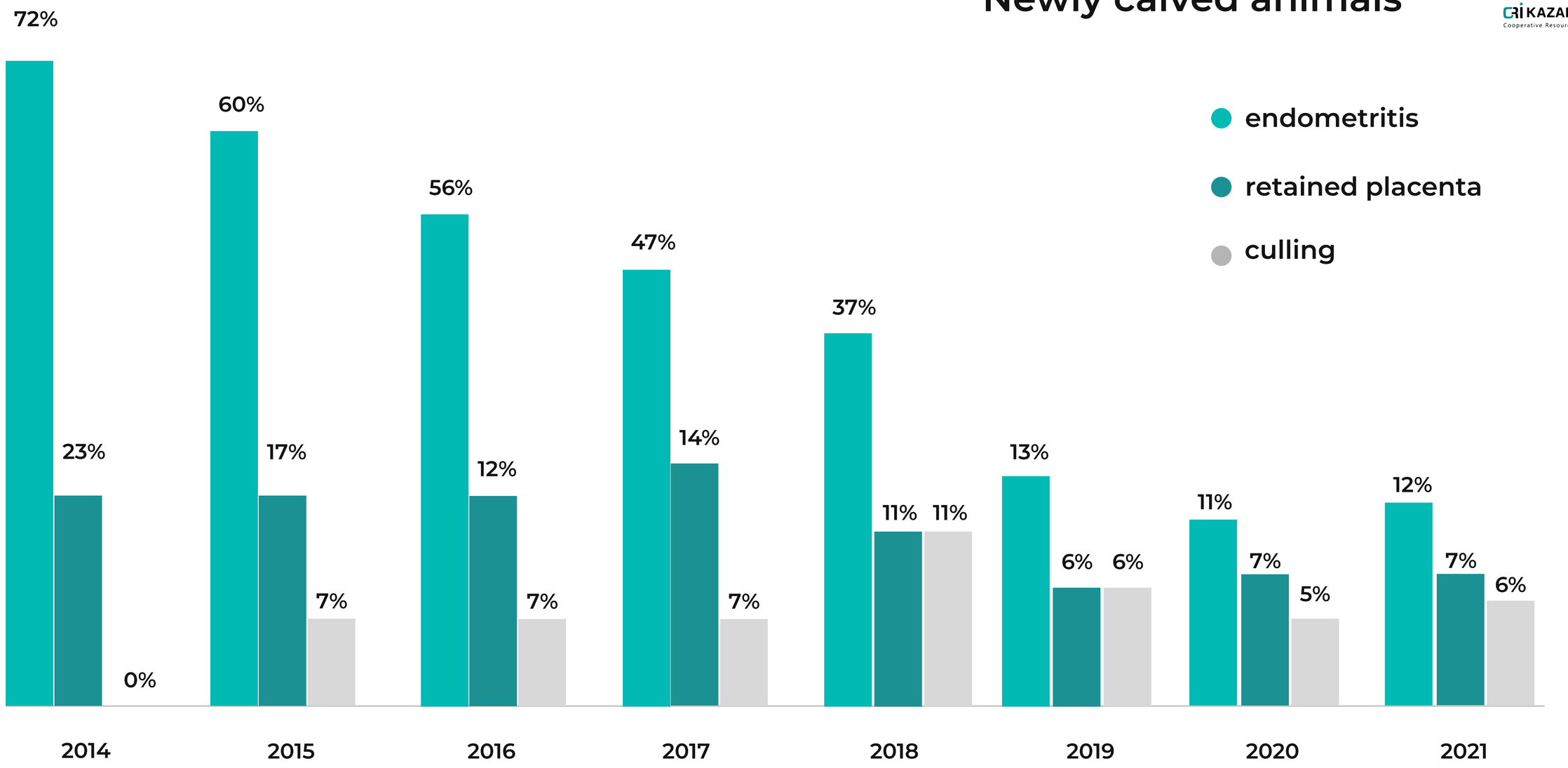
# EXPERIENCE OF ONE ENTERPRISE

**Cattle population**
**50%**

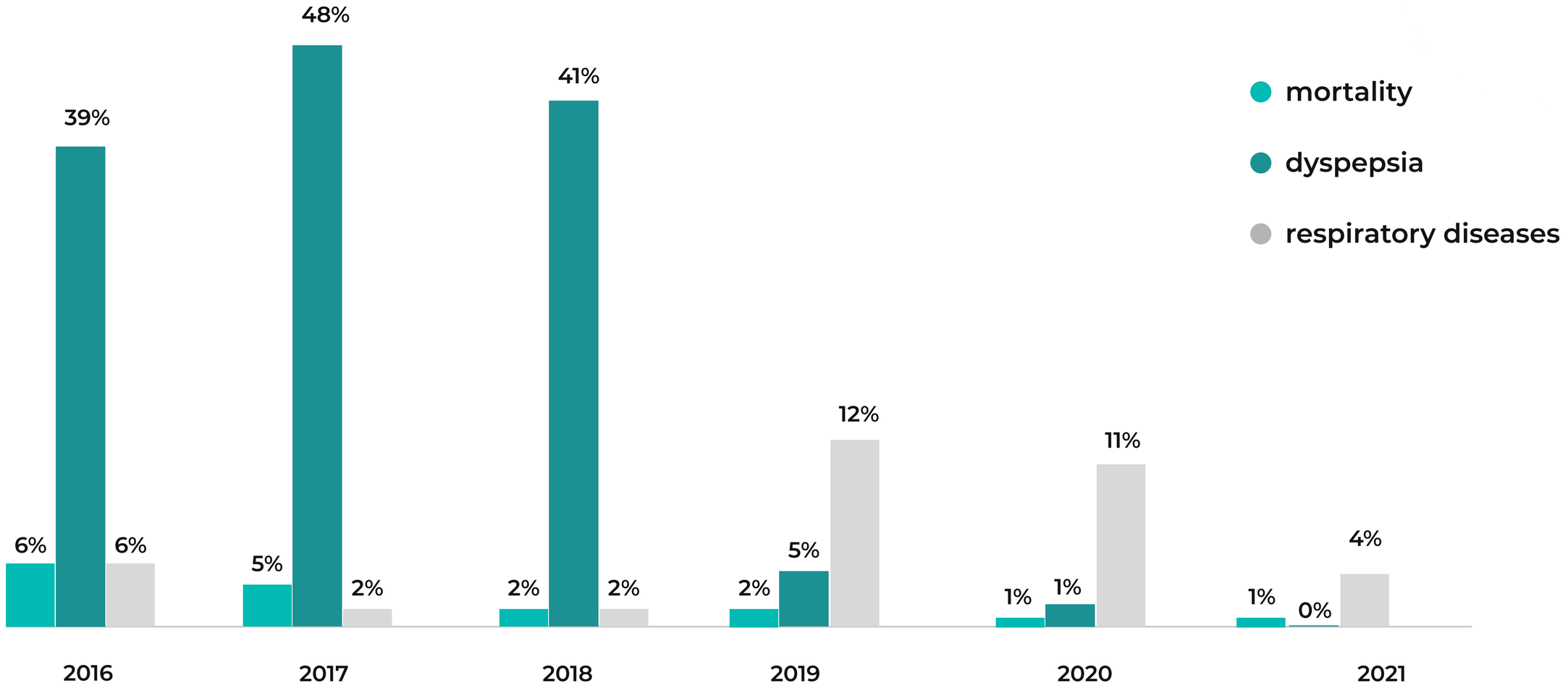
**Productivity**
**109%**



# Newly calved animals



# Calf survival and morbidity in the 0–3 month age group



# WHERE IS KAZAKHSTAN?

10% of exclusive farms like Rodina, Zenchenko:

**38L**

PER DAY

**90%**

PRODUCE FROM 18 TO 25 LITERS

**11 590 KG**

ANNUAL YIELD

**20%**

Out of 240 farms – 20% use high genetics.

**20%**

Average conception rate index

**10%**

of farms use the following strategy

**50%**

The main strategy is working with conventional semen – they get 50% heifers and 50% bull calves.

**3.5%**

Standard milk fat content used for subsidy calculation

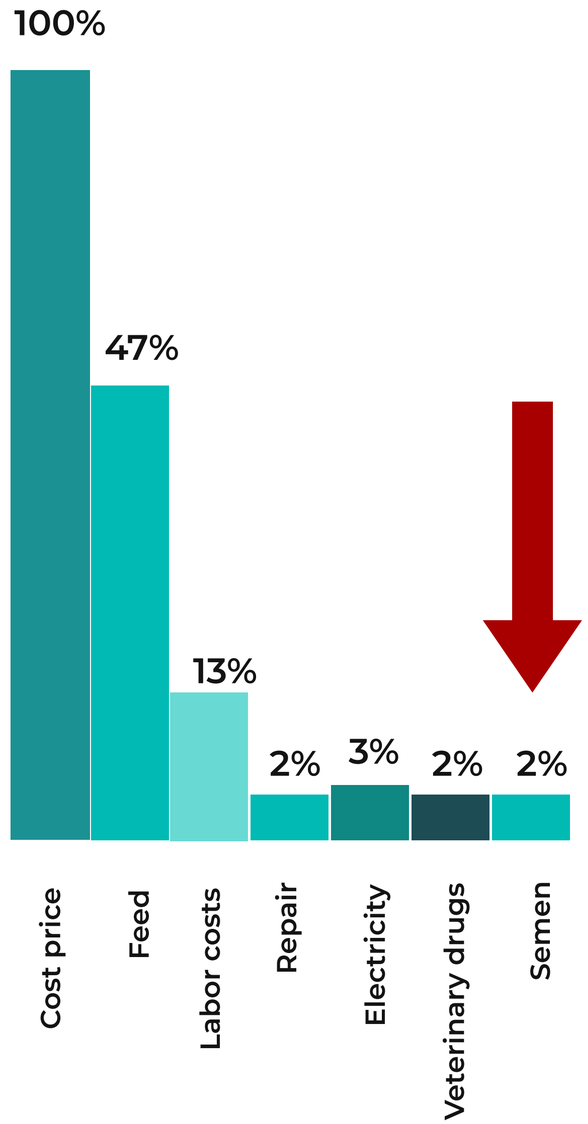
# PROBLEMS AND CHALLENGES ON THE WAY TO IMPROVING GENETIC POTENTIAL

Weak reproductive management (lack of protocols and clear regulations for an established reproduction system, no focus on identifying animals, underestimating animal tagging protocols for detection, and lack of investment in health monitoring systems and heat detection). As a result, farmers do not get pregnant animals, and in some cases, there are still farms that believe it is better to work with a bull. However, one must remember the consequences of using bulls – transmission of infectious diseases, unregulated selection.

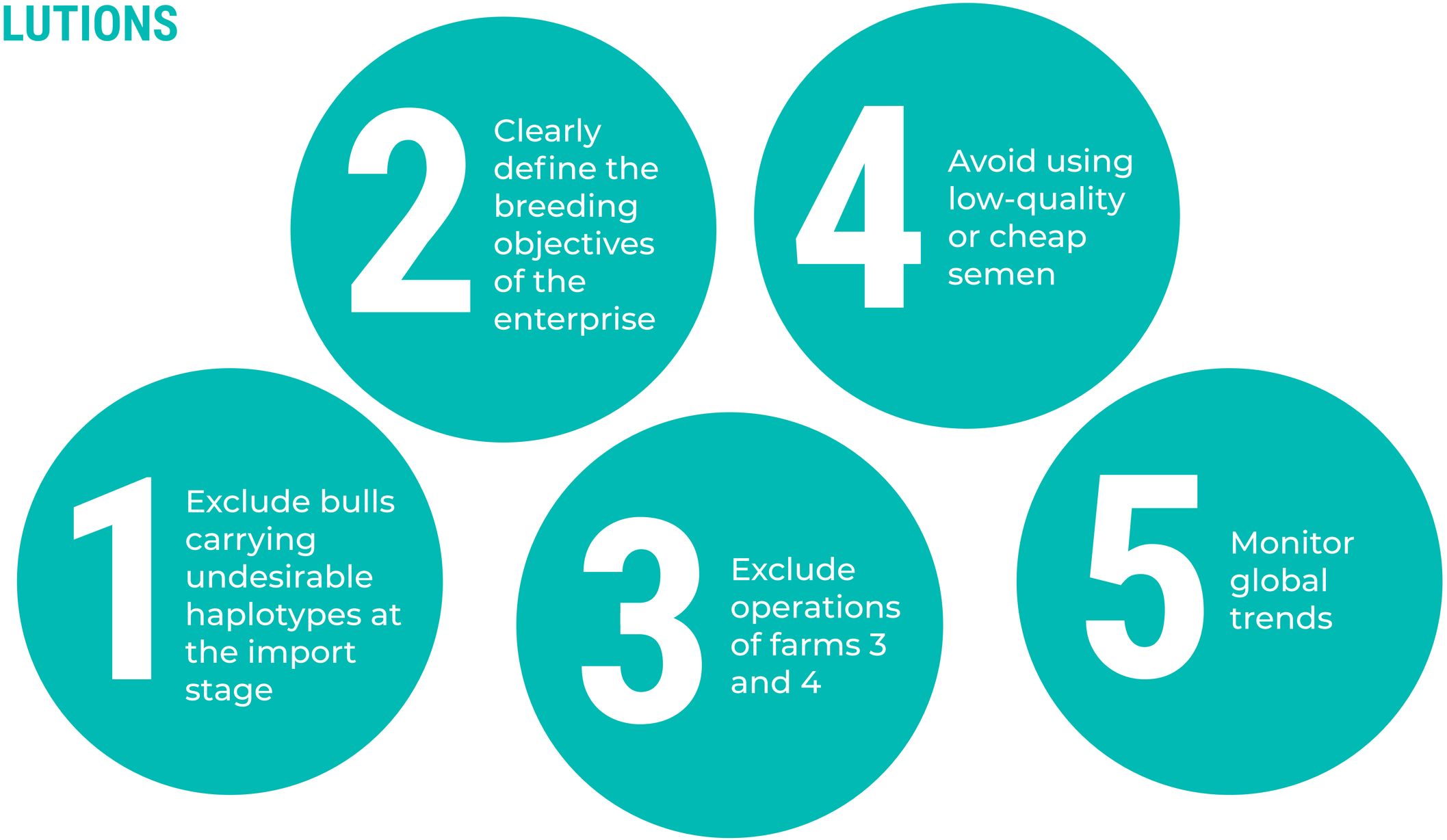
The perception is that genetics are expensive – however, in the cost structure of milk, genetics accounts for only 2%, the rest is feed (60%), veterinary costs, labor, etc. Decisions are unfortunately made intuitively, without calculating return on investment.

Trying to save on semen dose (price from 3,500 to 20,000 KZT) but ending up with empty (non-pregnant) cows leads to even greater losses: the calving interval increases, which reduces milk yield over 365 days, resulting in milk loss and thus profit loss.

Structure of production costs



# SOLUTIONS


2
Clearly define the breeding objectives of the enterprise
4
Avoid using low-quality or cheap semen
1
Exclude bulls carrying undesirable haplotypes at the import stage
3
Exclude operations of farms 3 and 4
5
Monitor global trends

# GENETIC STRATEGY

## Use the beef program on problematic animals

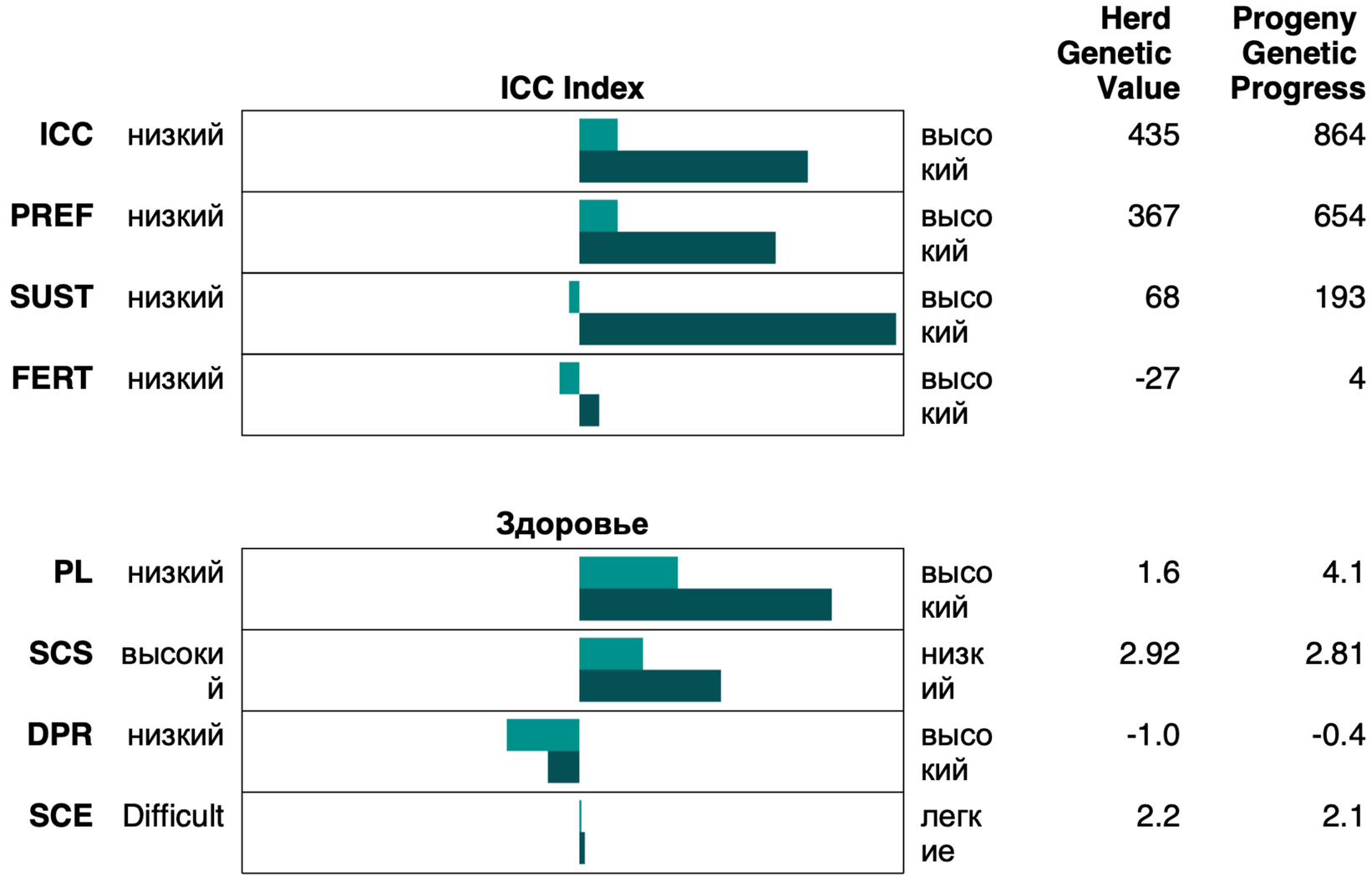
### The overall strategy of genetic focus should be structured as follows:

- Fertility
- Health
- Feed efficiency
- Productivity and milk components

# ROADMAP FOR IMPROVING THE GENETIC POTENTIAL OF LIVESTOCK IN KAZAKHSTAN

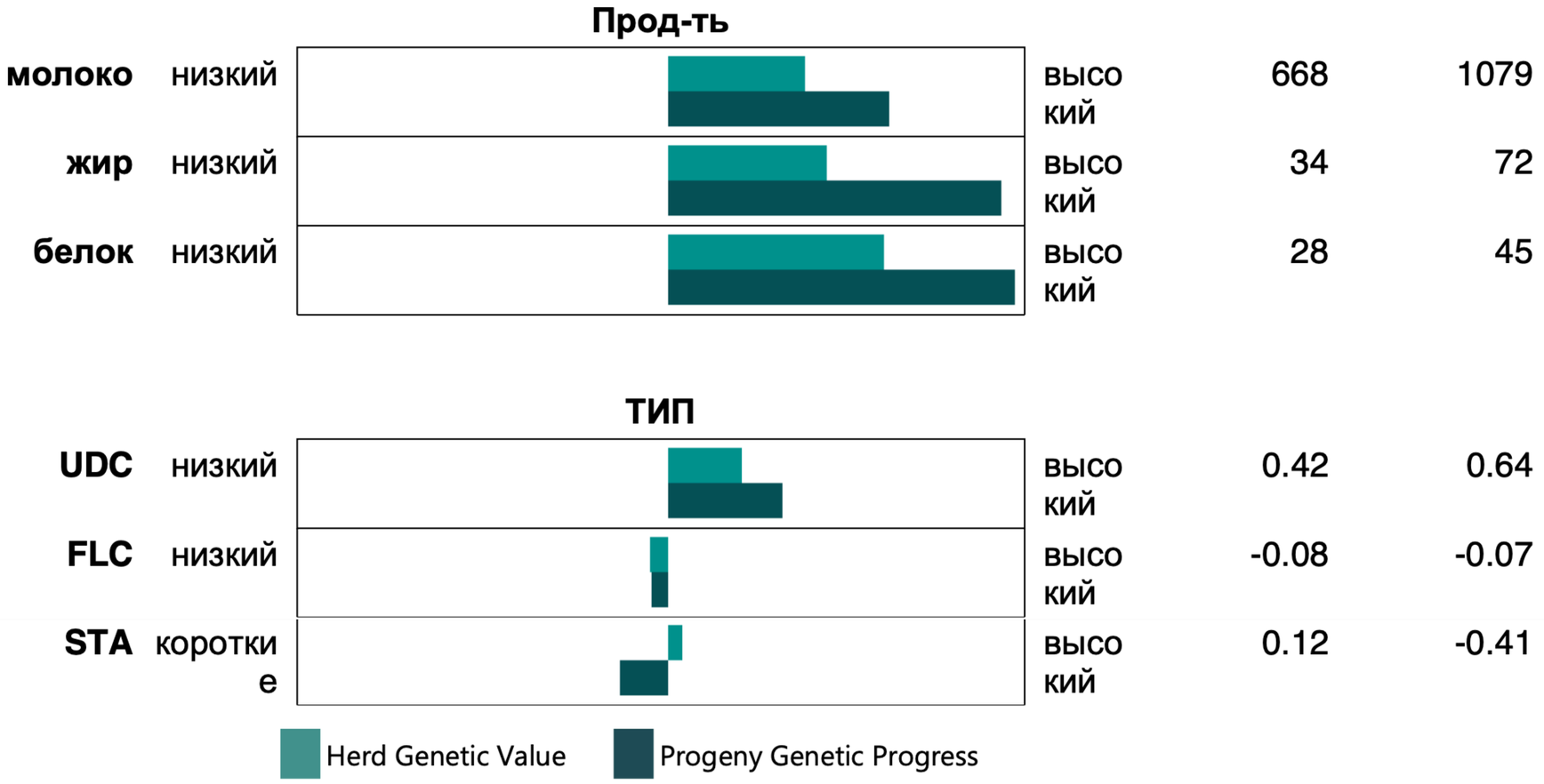
| Reproduction | Benchmark<br>USA - HO<br>n = 96<br>(January 2024) | Benchmark<br>USA -<br>(HO < 1000)<br>n = 25<br>(January 2024) | Benchmark<br>USA -<br>(HO >1000)<br>n = 71<br>(January 2024) | Benchmark<br>USA -<br>(HO > 1000<br>Top 25%)<br>n = 17<br>(January | Benchmark<br>USA -<br>(HO > 1000<br>Top 10%)<br>n = 7<br>(January 2024) | Benchmark<br>USA -<br>(HO > 2000)<br>n = 43<br>(January 2024) | Benchmark<br>USA -<br>(HO > 2000<br>Top 25%)<br>n = 11<br>(January |
|---|---|---|---|---|---|---|---|
| Voluntary Waiting Period | 63 | 64 | 63 | 67 | 69 | 63 | 70 |
| Fertility Rate | 43% | 42% | 43% | 51% | 52% | 43% | 50% |
| Heat Detection | 66% | 63% | 67% | 72% | 74% | 67% | 72% |
| Pregnancy Rate (PR) | 27,8% | 26,4% | 28,3% | 35,8% | 38,6% | 28,3% | 35,2% |
| Percentage of Cows Pregnant by Day 150 of Lactation (of Total Herd) | 74% | 70% | 75% | 82% | 84% | 75% | 80% |
| Estimated Annual Income Change with Achieving Benchmark Conception Rate | | | | | | | |

# PROJECTED GENETIC PROFILE OF THE RULIHA HERD




| | Herd Genetic Value | Progeny Genetic Progress |
|---|---|---|
| ICC | 435 | 864 |
| PREF | 367 | 654 |
| SUST | 68 | 193 |
| FERT | -27 | 4 |
| PL | 1.6 | 4.1 |
| SCS | 2.92 | 2.81 |
| DPR | -1.0 | -0.4 |
| SCE | 2.2 | 2.1 |

# PROJECTED GENETIC PROFILE OF THE RULIHA HERD



# LATEST CHANGES IN GLOBAL GENETICS

In April 2025, a reassessment of the cattle base was scheduled in the USA. The industry transitioned from the 2015 base to the 2020 base.

**This included:**

- Re-evaluation of bulls
- Re-evaluation of genetic indexes, such as:
  - ICC (Ideal Commercial Cow index)
  - NM (Net Merit index)
  - TPI (Total Performance Index)

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# THANK YOU FOR YOUR ATTENTION!

Genetics is not an expense,
but an investment in the stability
and efficiency of the farm