



Latvijas  
Lauksaimniecības  
universitāte



# Govju ģenētisko resursu saglabāšana Latvijā pielietojot embriju transferenci un ar to saistītās biotehnoloģijas *BioReproLV*

*1.1.1.1/16/A/025*

Vecauce, 2018

NACIONĀLAIS  
ATTĪSTĪBAS  
PLĀNS 2020



EIROPAS SAVIENĪBA  
Eiropas Reģionālās  
attīstības fonds



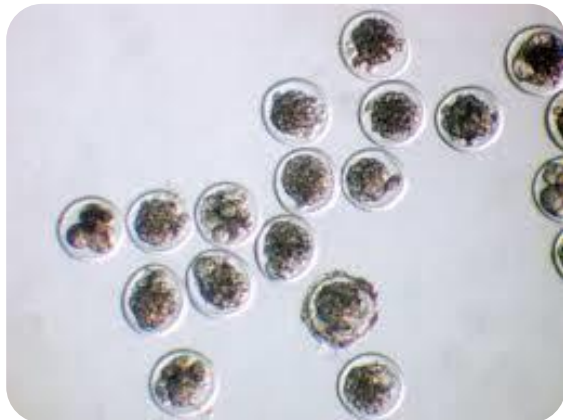
# Projekta mērķis

Latvijā audzējamo sarkano piena šķirņu govju ģenētiskās daudzveidības saglabāšana, Latvijas Brūnās un Latvijas Zilās šķirnes genofonda saglabāšanas stabilizēšana pielietojot embriju transferenci un ar to saistītās biotehnoloģijas metodes.



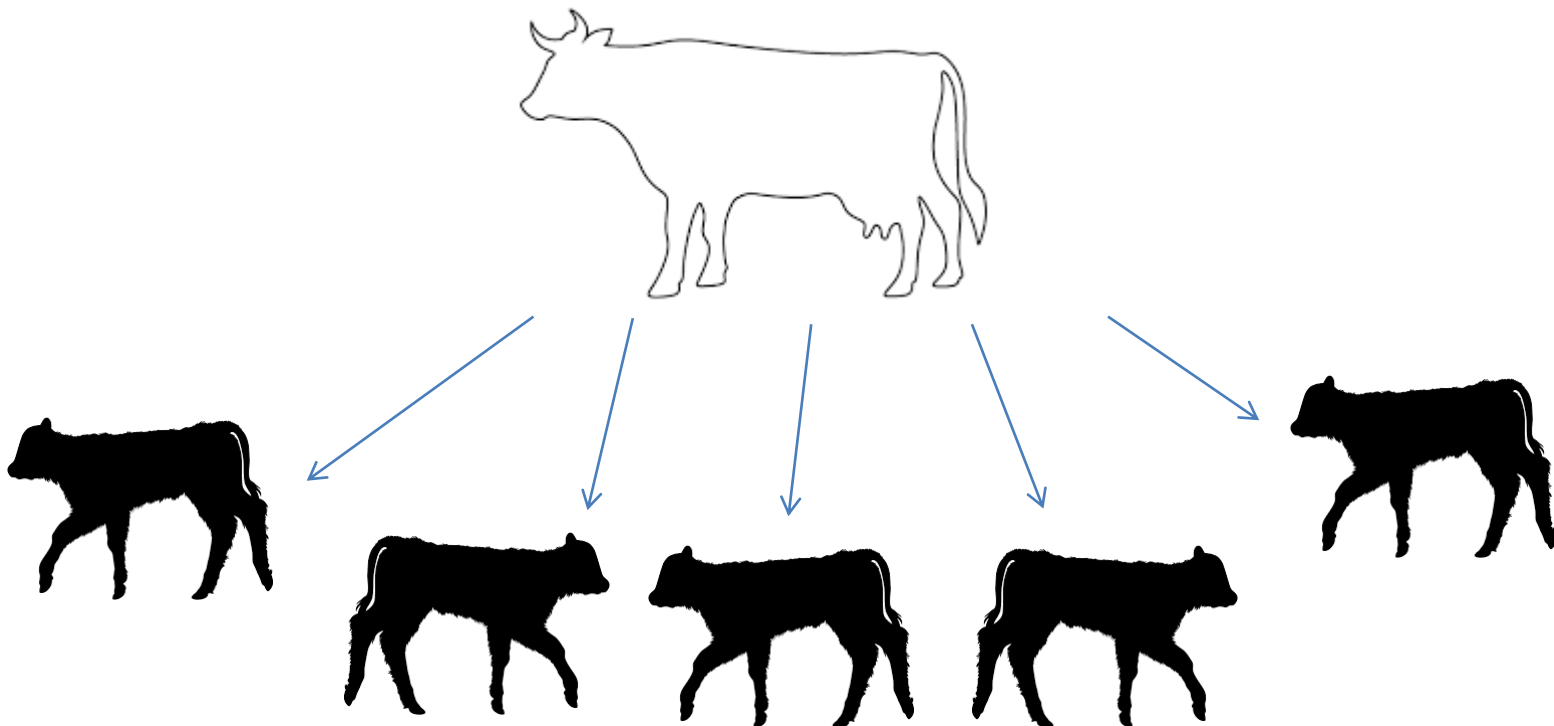
# Embriju transference

Tas ir process, kura laikā ar hormonu injekciju palīdzību donorgovju olnīcās tiek ierosināts superovulācijas process, kura rezultātā nogatavojas vairākas olšūnas. Pēc tam notiek mākslīgā apsēklošana un 7-8 dienā pēc sēklošanas, embriji tiek izskaloti un pārnesti uz recipientiem



# Donorgovs

Kas ir donorgovs? Tā ir govys, kas atbilst šķirnes kritērijiem un ir ģenētiski vērtīga šķirnes saglabāšanai.



# Superovulācija

Hormonu injekciju izraisīts process olnīcās, kuru rezultātā veidojas vairākas olšūnas.

Ar superovulācijas palīdzību olnīca spēj «saražot» pat 10x vairāk olšūnu nekā parastā dzimumciklā



# Recipients

Rūpīgi izmeklēta tele vai govs, kas paredzēta teļa  
iznēsāšanai.

NB! Jāņem vērā, ka recipientam ir jābūt tādā  
pašā cikla dienā kā donorgovij



# Embriju izskalošana

7.dienā pēc mākslīgās apsēklošanas donorgovs tiek gatavota embriju izskalošanai.

Skalošanas process notiek dzemdē ievadot speciālu katetru, caur kuru dzemdes ragā tiek ievadīts speciāls šķīdums. Pēc tam šis šķīdums tiek izvadīts ārā.

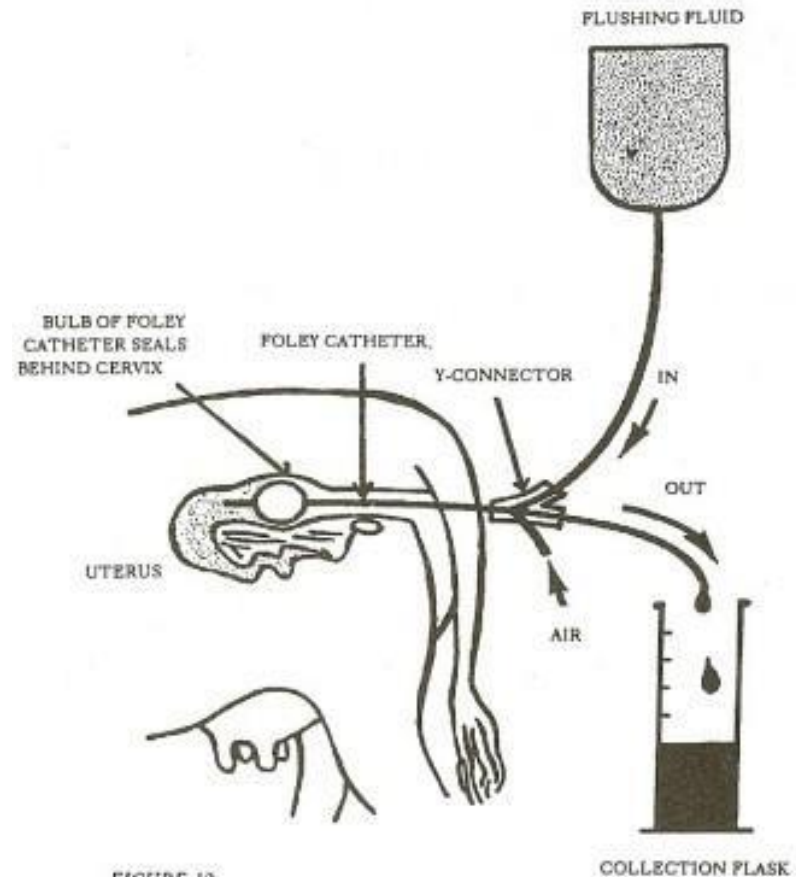


FIGURE 12

NON-SURGICAL COLLECTION OF EMBRYOS



# Embriju meklēšana



Tālāk izskalotais šķidrums tiek nogādāts laboratorijā.

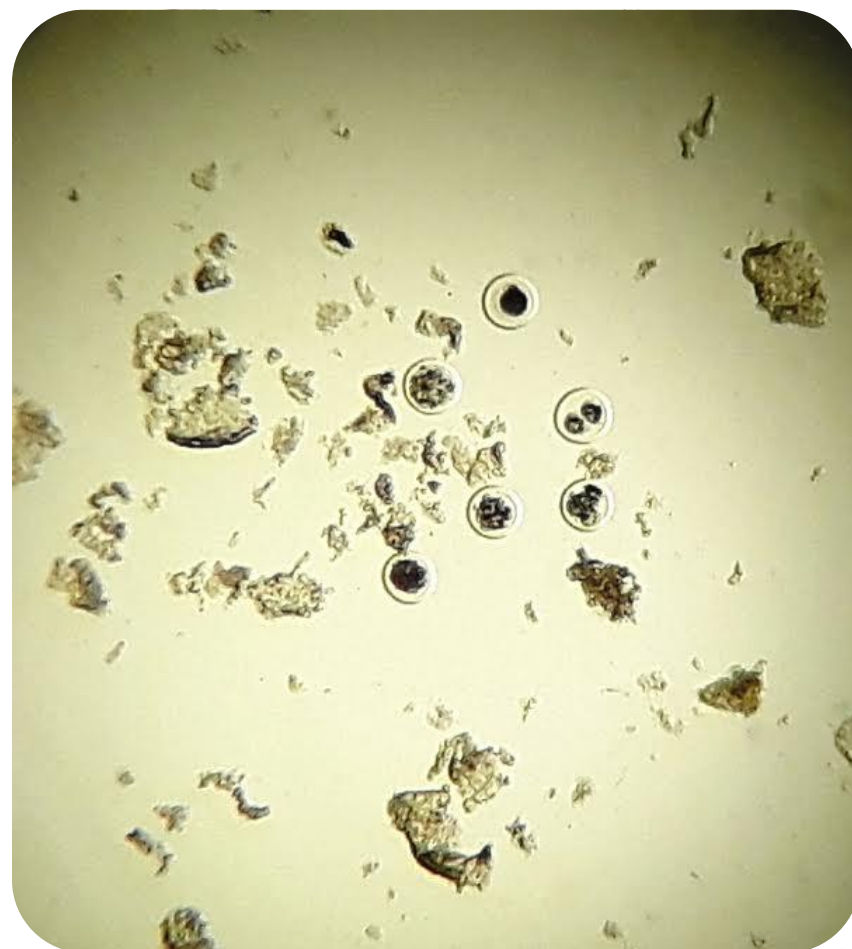
Izskalotajā šķīdumā ar mikroskopu palīdzību tiek meklēti embriji





# Embriju sagatavošana transferencei

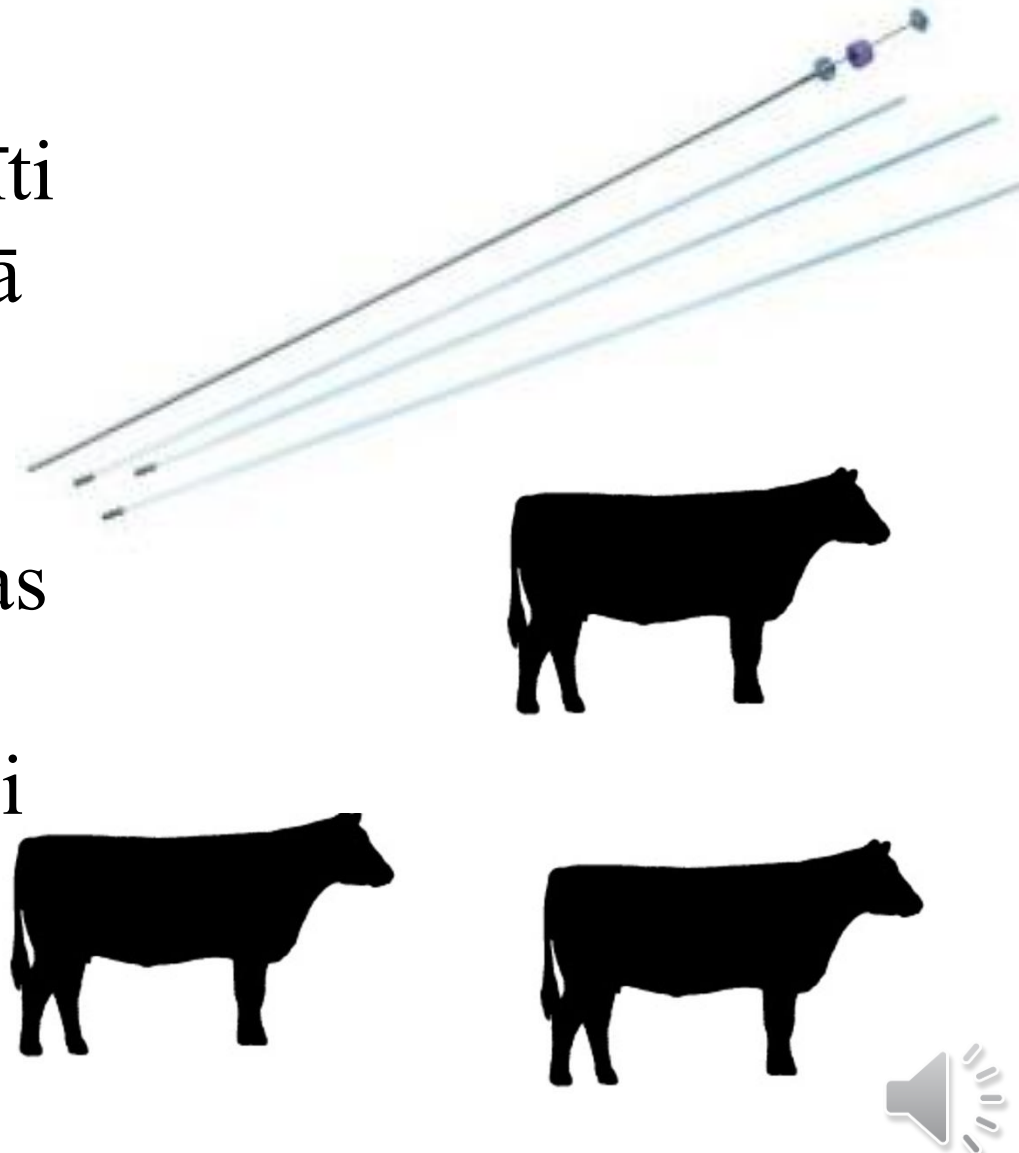
Atrastie embriji tiek  
salasīti un sagatavoti  
pildīšanai speciālajos  
salmiņos



# Embriju transference

Kad embriji ir sapildīti salmiņos, tos nogādā pie recipientiem.

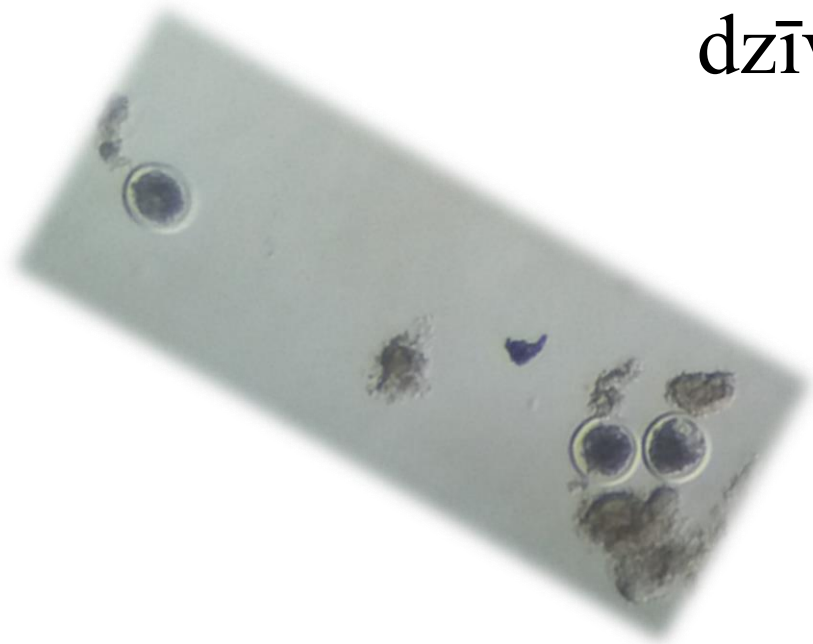
Salmiņus ielādē speciālā «pistolē», kas līdzīga mākslīgās apsēklošanas pistolei



# Embriju saldēšana

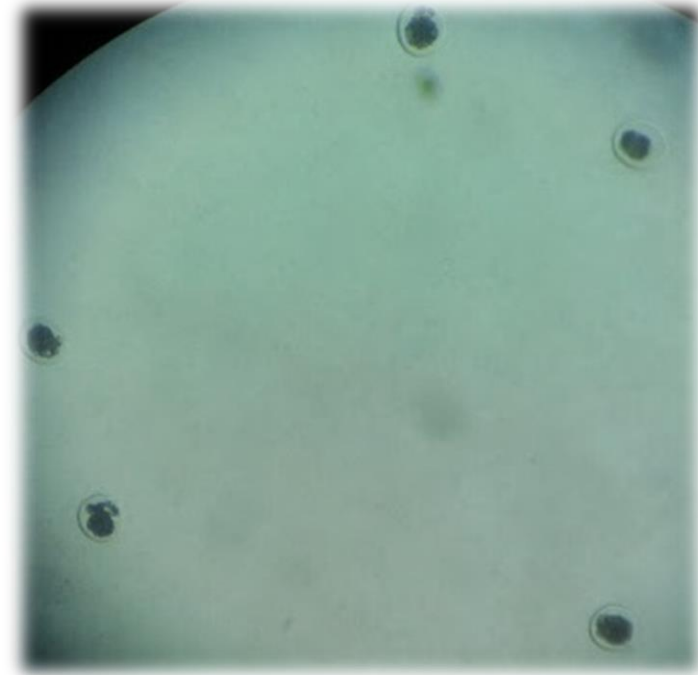
Augstas kvalitātes embrijus ir iespējams sasaldēt un uzglabāt ilgāku laika periodu.

Pēc atkausēšanas embrijs saglabā savu dzīvotspēju



# Mūsu sasniegumi skaitļos

- Ar PMSG (*Foligon*) sagatavotas 11 govis- iegūti 3 kvalitatīvi embriji
- Ar FSH (*Stimufol*) sagatavotās 2 govis- iegūti 22 kvalitatīvi un 2 nekvalitatīvi embriji
- No tiem kriopreservēti 20 embriji, kuri ir pieejami transferēšanai uz veselām telēm (griezties pie Latvijas Šķirnes Dzīvnieku Audzētāju savienības speciālistiem)



# Mūsu projekta īstenošana bildēs







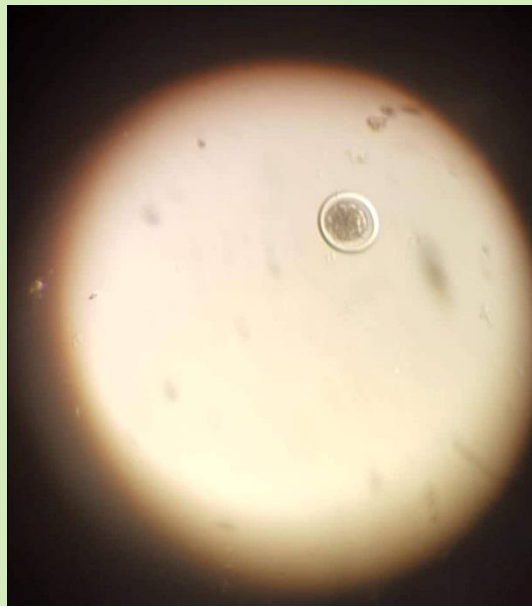












**BioReproLV**  
Goviņa ģenētisko resursu saglabāšana Latvijā  
pielietojot embriju transferenci un ar to saistītās  
biotehnoloģijas

№ 1.1.1/16/AARD/2015





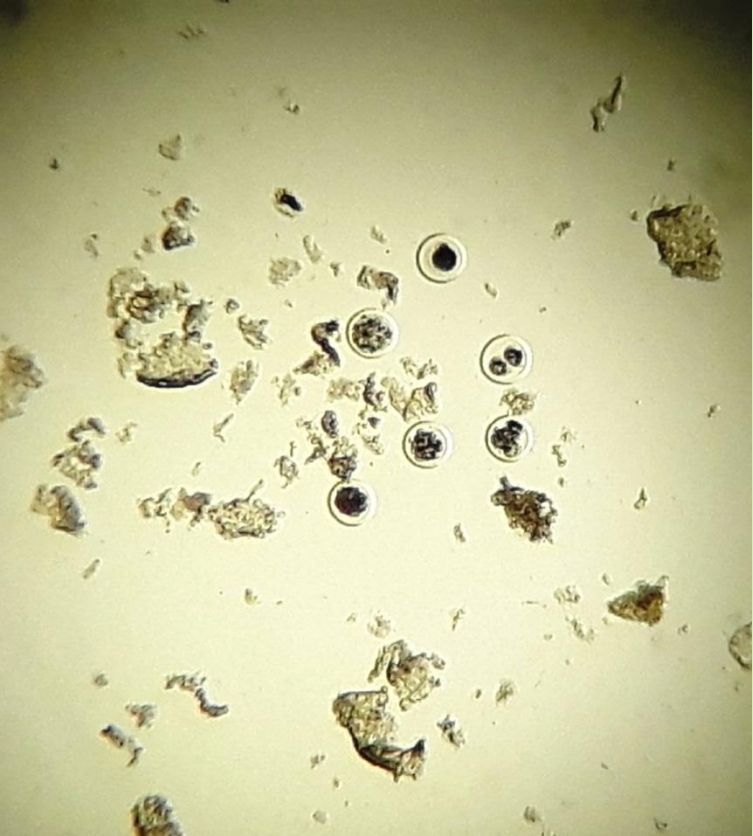






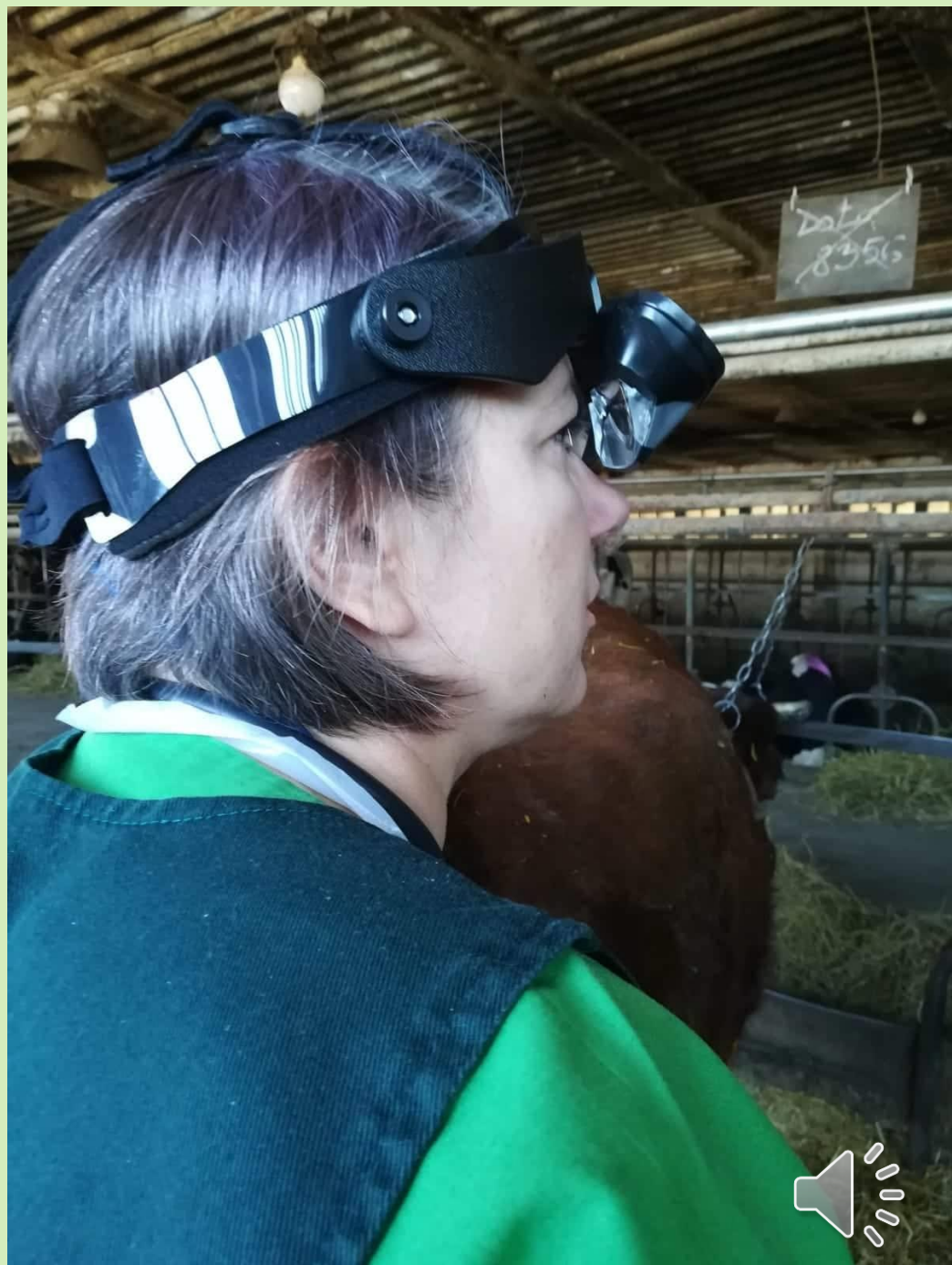








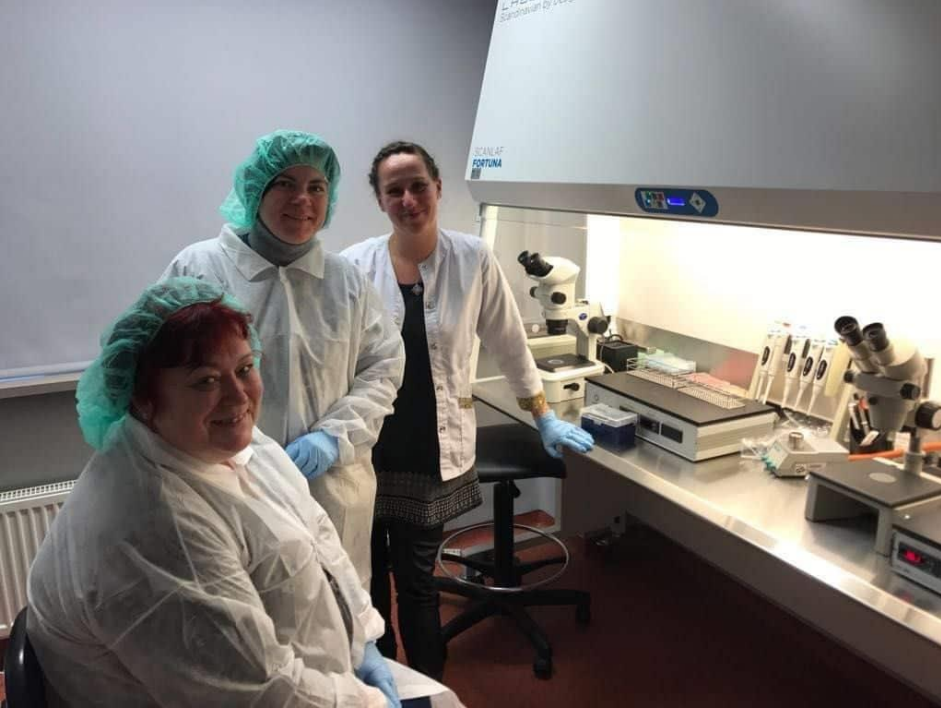










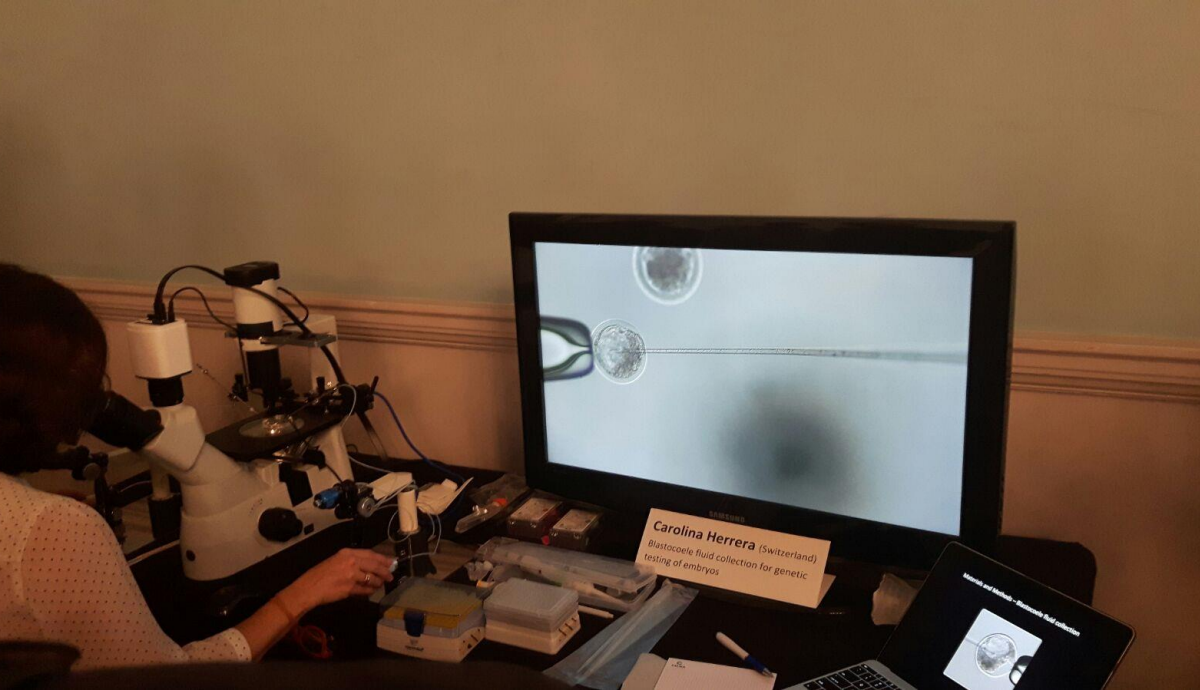


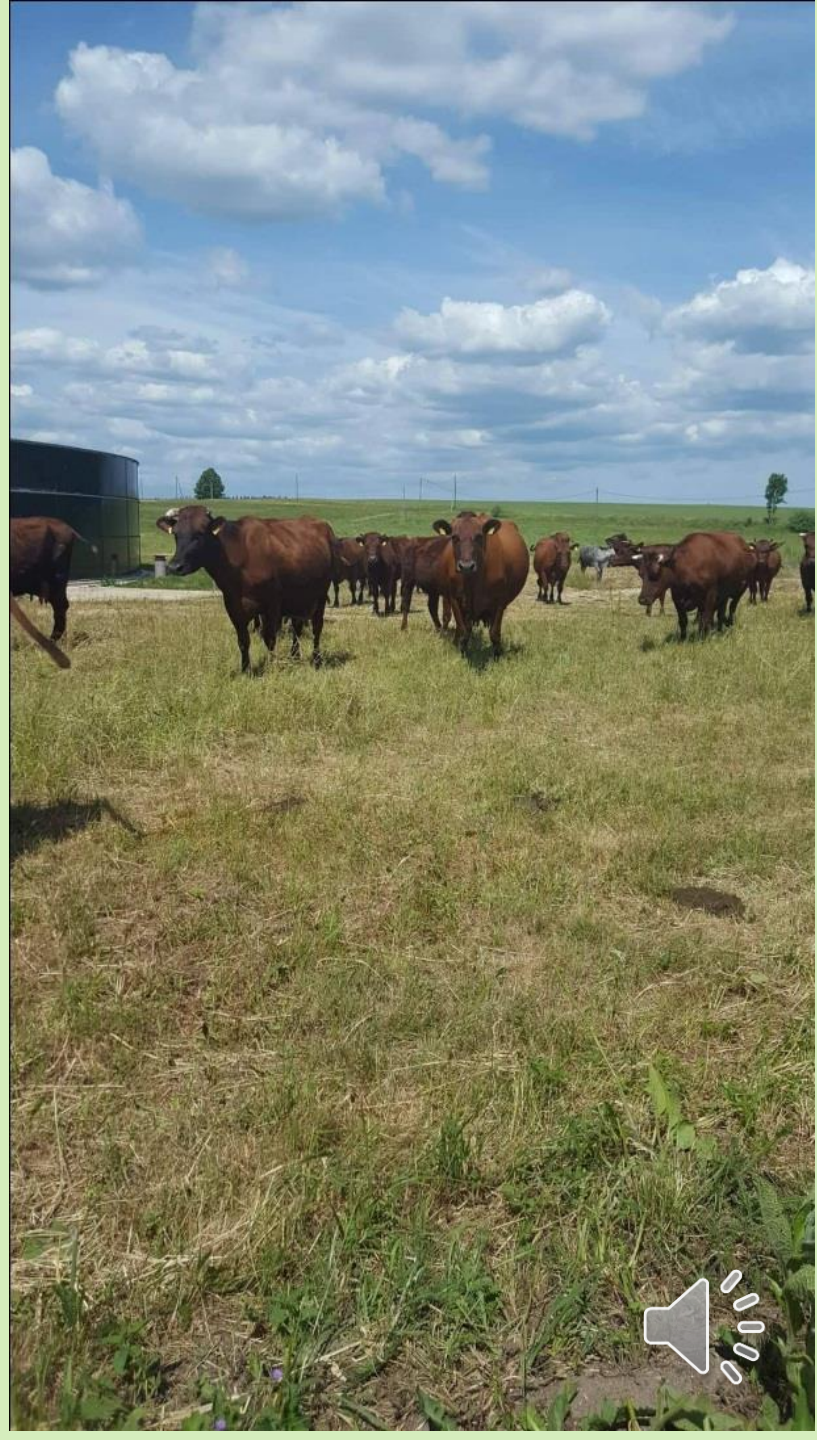


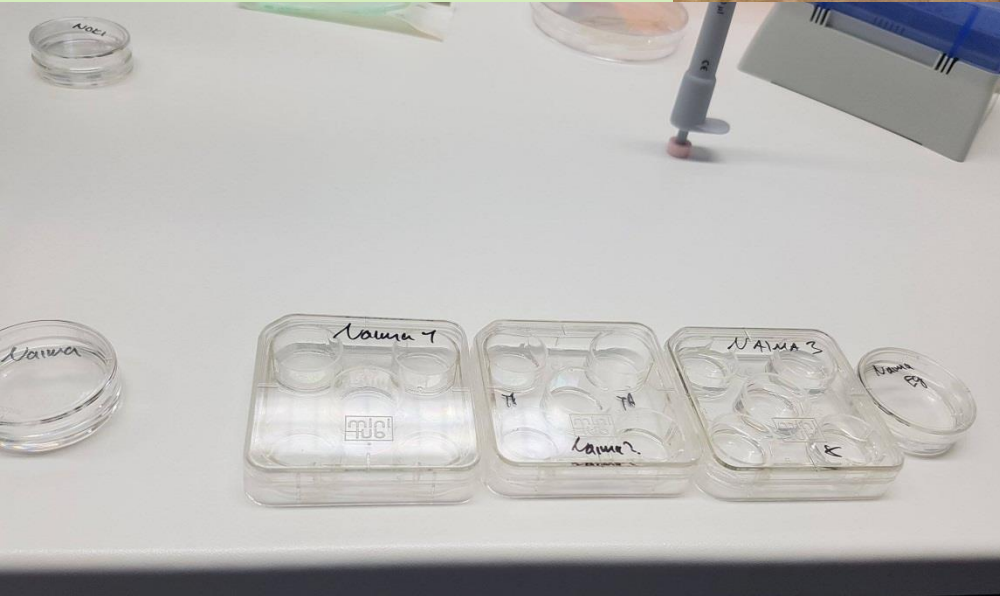


















### POSSIBILITY TO PRESERVE LOCAL COW BREEDS IN LATVIA

Vita Arīne, Iga Šematoviča  
 Latvian University of Agriculture, Faculty of Veterinary Medicine, Clinical Institute  
 Kļ. Heimenštrāte 8, LV-3004, Jelgava, Latvia, vita.arane@lu.lv

**Introduction:** Latvian Brown (LB) and Latvian Blue (LB2) are Latvian local animals of the bovine gene fund (GF) in 2016. LB2 maintain the local cow breeds, LB to new and artificial introduction (AI) and rescue breeding program (RBP) through 2016 until the 3.1.1.2016/2017 Latvian Brown and Latvian Blue cow gene transfer and related management. RBP is a practice to promote falling breeding cow herd of Latvia and to give them the small farms without industrial feeding.

**Results:** The aim of the investigation was to consider possibility to use LB in cross with modern breeds for milk production and meat production. The aim of the investigation was to consider possibility to use LB in cross with modern breeds for milk production and meat production. The aim of the investigation was to consider possibility to use LB in cross with modern breeds for milk production and meat production.

Year	LB	LB2
2014	26	26
2015	26	26
2016	26	26

### MILK PRODUCTIVITY AND REPRODUCTION ANALYSIS OF DAIRY COWS IN DIFFERENT HOUSING AND FEEDING TECHNOLOGIES

Daina Jonkus, Lāsma Čelāva, Sandija Zēverte – Rīviža, Baiba Rīviža  
 Latvian University of Agriculture  
 lasma.celava@lu.lv

**Introduction:** Dairy milk production is affected by different factors. The improvement of housing and feeding conditions shows great impact on cow milk productivity and milk composition.

**Results:** The year's milk production was determined by using the SPSS software. The year's milk production was determined by using the SPSS software. The year's milk production was determined by using the SPSS software.

Year	Fact	N
2014	26	26
2015	26	26
2016	26	26

# Embryonics

leaders in training



## Veterinary CPD

[www.embryonicsltd.co.uk](http://www.embryonicsltd.co.uk)



@EmbryonicsTraining



@embryonics



33rd AETE meeting in Bath, (UK), 8-9 September, 2017

### POSSIBILITIES TO PRESERVE LOCAL COW BREDS IN LATVIA

Vija Anšpina, Rīga, Latvia  
 Latvia University of Agriculture Faculty of Veterinary Medicine, Clinical Institute  
 K.I. Rabinovs street 8 LV-2004, Sigulda, Latvia, (viansh@vetlul.lv)

**Introduction:** Latvian Brown (LB) and Latvian White (LW) are local Latvian breeds of the bovine gene pool (GP), and therefore unique and characteristic only in Latvia. In 2016, only 112 LB and 11 LW cows were registered as GP animals. To be saved breeding and artificial insemination (AI) have been the methods of conserving GP of Latvia. Majority of the GP animals are in advanced age, therefore we would farm without established breeding ratios, and therefore may suffer from reproductive disorders. In 2017, through ERDF project No. 1.1.1-16A-VK22, Latvian Brown and Latvian White are great importance using assisted reproductive (AR) and related technologies. AI will be replaced in Latvia after 10 years of assumption.

**The aim:** of this investigation was to consider possibilities of using ET in LB and LW cows that could be classified as reproductive donors.

**Materials and methods:** The analyzed data were obtained in Latvia in 1984-85. Thirty Latvian Brown cows (13 LW) and 30-year-old were selected from their herds that in reproductive period (80% of cows). 17 LW and 13 LB cows were 10-20 years old were selected from their herds that in reproductive period (80% of cows). 17 LW and 13 LB cows were 10-20 years old were selected from their herds that in reproductive period (80% of cows).

**Results:** Histological investigation revealed different types of anatomical alterations in 91.7% of the cows. A diffuse type of endometrial alterations (endometrial hyperplasia) were observed in 20.7% cows. Despite the fact that reproductive disorders (lymphoid leukosis, infection in various structures of the reproductive tract) were observed in 64% cows, reproductive rates reached 80.77% and the amount of calves born 83.5 was 83.52. Embryonic survival rate in 46% cows, superovulation rate reached 9.77% and the amount of calves born 83.5 was 83.52. Embryonic survival rate in 46% cows, superovulation rate reached 9.77% and the amount of calves born 83.5 was 83.52. Embryonic survival rate in 46% cows, superovulation rate reached 9.77% and the amount of calves born 83.5 was 83.52.

Parameter	LB cows	LW cows	Significance
Superovulation rate (%)	9.77	10.77	P < 0.05
Embryonic survival rate (%)	46	46	P > 0.05
Calves born	83.5	83.5	P > 0.05

**Conclusions:** Lymphoid leukosis, anemia and mastitis in reproductive age cows as well as various infectious diseases, endometrial hyperplasia, uterine infections, uterine invagination, and uterine prolapse influenced on animal's behavior, on pregnancy maintenance, on embryonic survival rate, and on the amount of calves born. Therefore, the possibility of using ET in LB and LW cows that could be classified as reproductive donors is high.

### Artificial activation of ovine oocytes is required after ICSI with freeze-dried spermatozoa

33rd AETE meeting in Bath, (UK), 8-9 September, 2017

Vija Anšpina, Rīga, Latvia  
 Latvia University of Agriculture Faculty of Veterinary Medicine, Clinical Institute  
 K.I. Rabinovs street 8 LV-2004, Sigulda, Latvia, (viansh@vetlul.lv)

**Introduction:** Artificial activation of ovine oocytes is required after ICSI with freeze-dried spermatozoa. The aim of this investigation was to consider possibilities of using ET in LB and LW cows that could be classified as reproductive donors.

**Materials and methods:** The analyzed data were obtained in Latvia in 1984-85. Thirty Latvian Brown cows (13 LW) and 30-year-old were selected from their herds that in reproductive period (80% of cows). 17 LW and 13 LB cows were 10-20 years old were selected from their herds that in reproductive period (80% of cows).

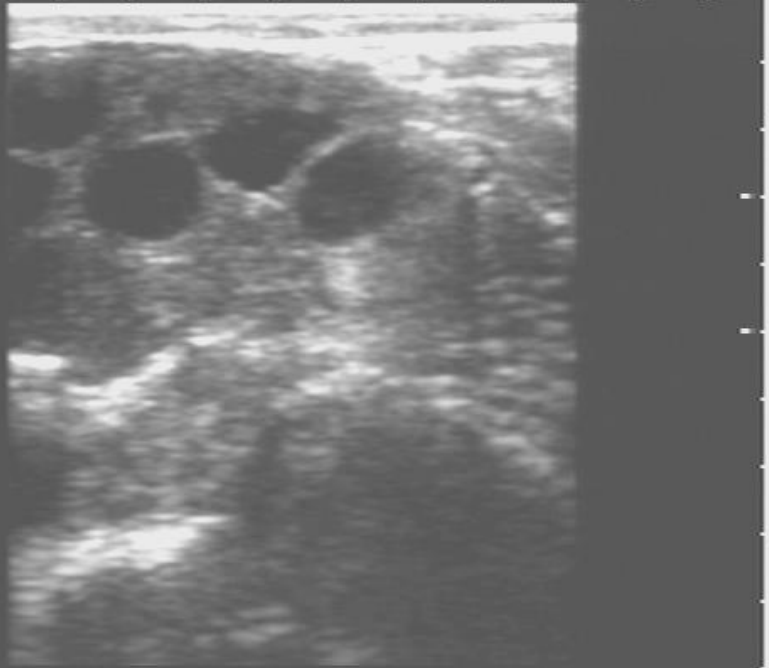
**Results:** Histological investigation revealed different types of anatomical alterations in 91.7% of the cows. A diffuse type of endometrial alterations (endometrial hyperplasia) were observed in 20.7% cows. Despite the fact that reproductive disorders (lymphoid leukosis, infection in various structures of the reproductive tract) were observed in 64% cows, reproductive rates reached 80.77% and the amount of calves born 83.5 was 83.52. Embryonic survival rate in 46% cows, superovulation rate reached 9.77% and the amount of calves born 83.5 was 83.52.

**Conclusions:** Lymphoid leukosis, anemia and mastitis in reproductive age cows as well as various infectious diseases, endometrial hyperplasia, uterine infections, uterine invagination, and uterine prolapse influenced on animal's behavior, on pregnancy maintenance, on embryonic survival rate, and on the amount of calves born. Therefore, the possibility of using ET in LB and LW cows that could be classified as reproductive donors is high.



FR H ID: AGE: GENO: →

SPEED: 85  
LINE: 6.5M  
FRAM: 4/8  
FOCS: 0305  
RES: 16  
CLGS: 10  
FACS: 14  
BWS: 32  
CONT: 32  
COLOR: 000  
PSMT: IM  
GAMA: GM



DATE: 100





