

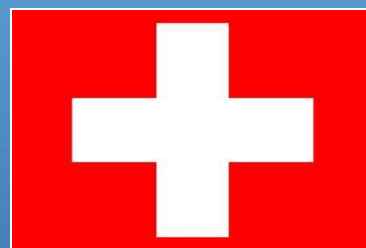


# Welcome

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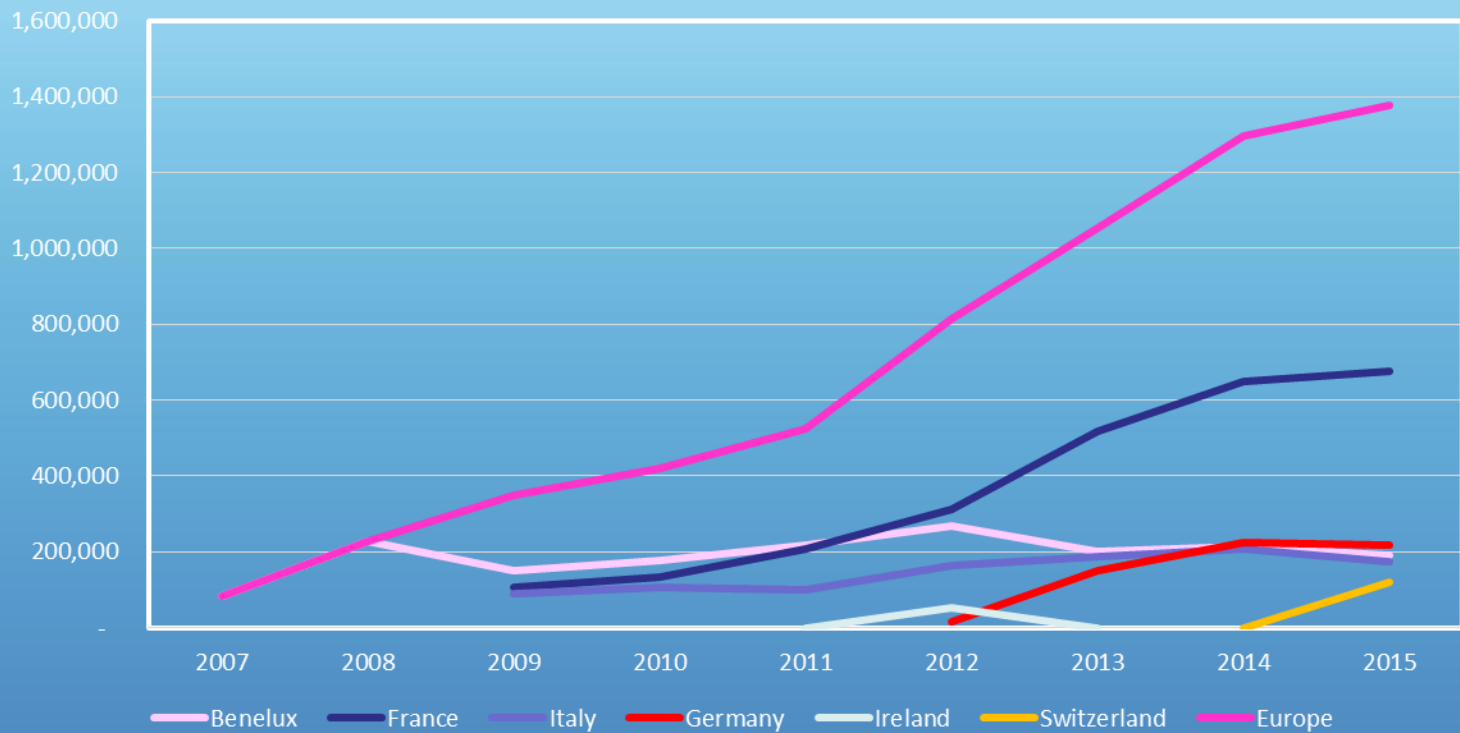
# AI-Vets 2016

October 28, 2016



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# Europe 2007 - 2015



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# Sexing Technologies, USA



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Sexing  
technologies  
[www.sexingtech.com](http://www.sexingtech.com)

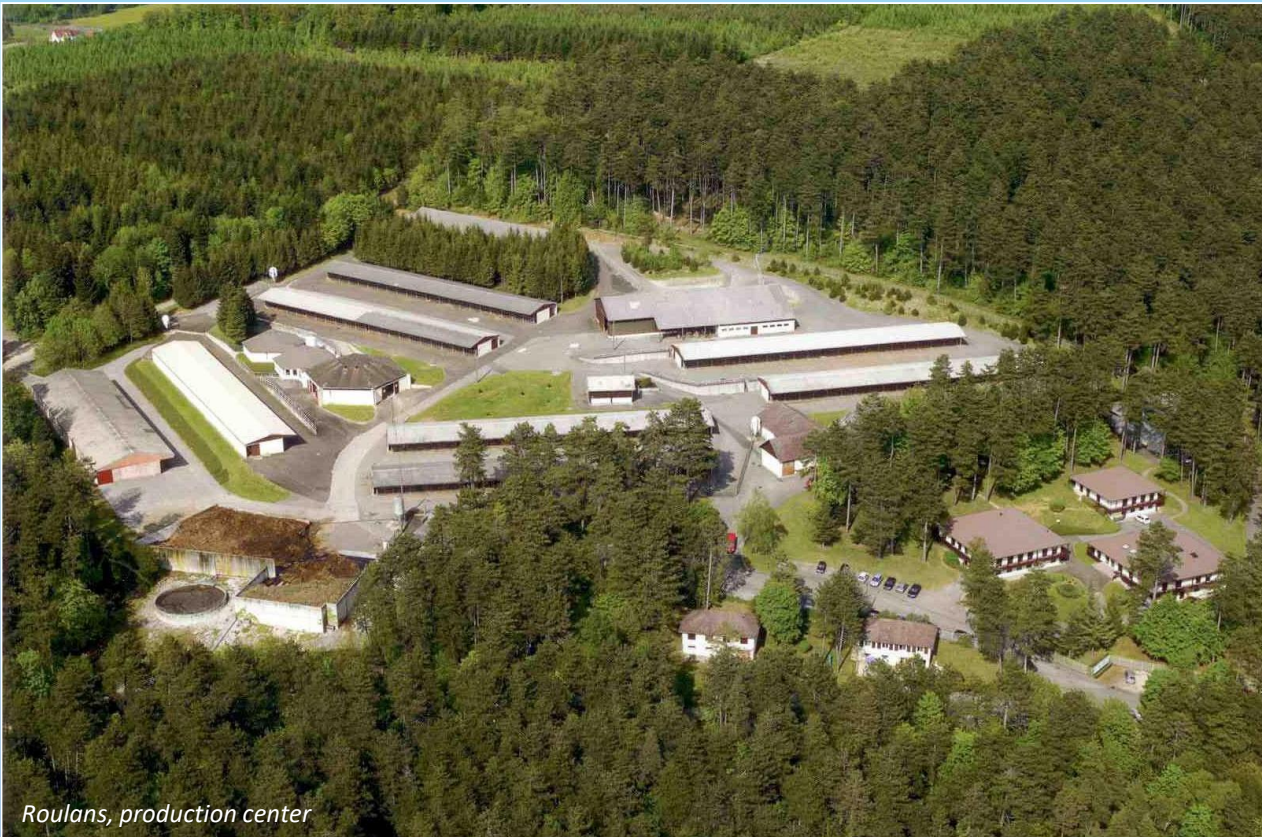


# ST Benelux BV



*Deventer, laboratory ST Benelux BV*

# ST France SARL



*Roulans, production center*

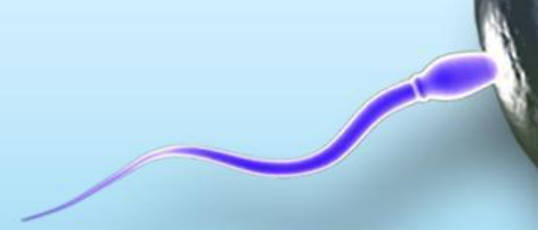
# ST France SARL



*Saint-Aubin-du-Cormier, production center*



# ST Italy SRL



*Bibbiano, production center*





# ST Ireland Ltd



*Fermoy, production center*



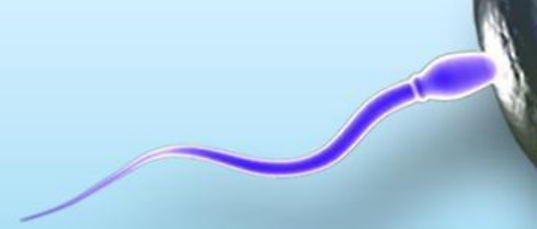
# ST Germany GmbH



*Cloppenburg, production center*



# ST Switzerland GmbH



Mülligen, laboratory ST Switzerland GmbH



## Advantages Sexed Semen

- 90 % Females
  - increase of herd size
  - sale of breeding stock
  - use of beef sires
  - female of your best cow
- Less calving problems
  - heifers give easier births
  - heifers healthier and more fertile
- Higher milk production
  - successive female calves means more milk
- Accelerating genetic progress
  - sexed semen doubles results genomic selection



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## SexedULTRA™

- Improved biotechnology
  - specially formulated media
  - minimum damage to sperm cells
- New developed sorting machines
  - advanced computer software
  - sorting more quickly and accurately
  - Fewer sperm cells lost
- Improved fertility
  - up to 95 % of conventional semen
  - less repeated inseminations



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# Development of machines



# Fertility of sexed semen

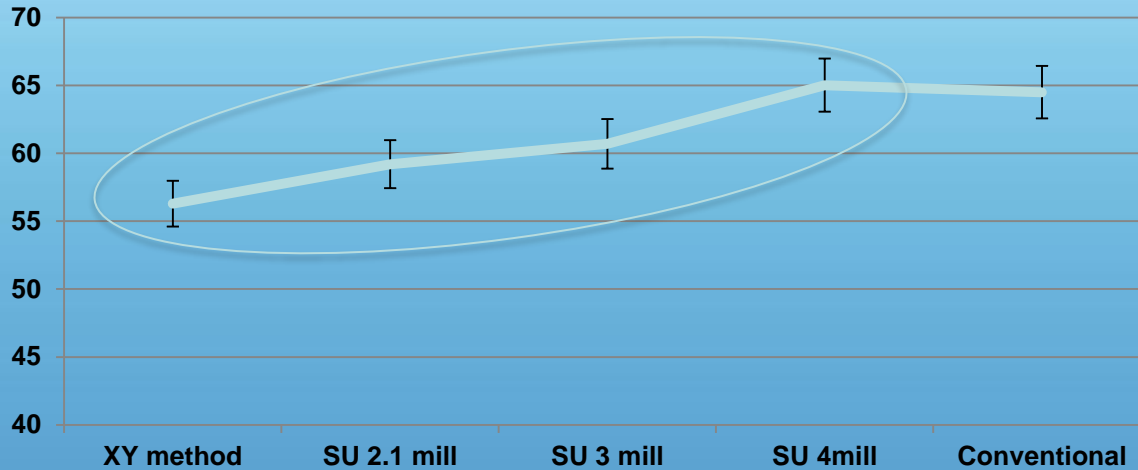


- Relative fertility vs. conventional
  - 2009: 75%
  - 2011: 80%
  - 2015: 92%
- SexedULTRA™ Plus
  - 2015: up to 100 %

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# Dose rate trials with new SexedULTRA™

56 day NRR (%)



| Treatment      | Number of inseminations | 56 day NRR (%)     | Relative fertility (%) |
|----------------|-------------------------|--------------------|------------------------|
| XY method      | 1292                    | 56.3 <sup>A</sup>  | 87%                    |
| SU 2.1 mill    | 1245                    | 59.2 <sup>A</sup>  | 92%                    |
| SU 3 mill      | 1328                    | 60.7 <sup>AB</sup> | 94%                    |
| SU 4 mill      | 1182                    | 65.0 <sup>B</sup>  | <b><u>100%</u></b>     |
| Conv (15 mill) | 50,143                  | 64.5 <sup>B</sup>  |                        |

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- Trial with heifers
- NRR with different superscripts are significantly different P < 0.01





# Practicalities

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# Most important factor: the bull



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# Quality semen young bulls

- Age/maturation of the young bull
- Advise minimum 15 months
- Quality of the ejaculate:
  - 6 billion cells per ejaculate
  - 70% motility
  - <25% abnormalities
- Management of the young bulls
  - at least two weeks of normal production of semen before sexing
  - regular jumping of bulls: twice a week

# Using Sexed Semen

- Thaw in temperature controlled thawing units
- Using a thermometer
- At least 30 seconds in thawing unit of 35-37°C (or 10 seconds in in thawing unit of 38°C)
- Dry the straw and put the straw in the gun, keep it warm
- Cut the straw at 1 cm
- Inseminate within 5 minutes after thawing

# Protocol for ET

- 2 straws of 5 million 18 hours after first standing heat (or 1 straw of 8 million)
- 1 straw of 5 ( or 8) million 8 hours after the first 2 straws
- All the super ovulation work ST has done is using Follotropin as the super-ovulatory hormone on a 4 day decreasing dosage regime.



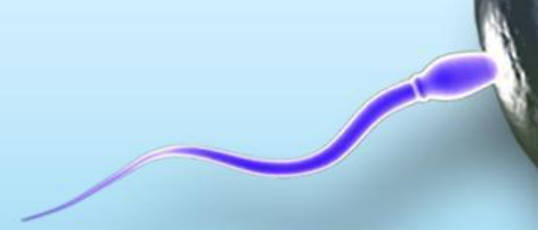
# High efficiency

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# High speed sorting

- + High number of produced straws per sorter per hour
- + Low number of sorters needed per ejaculate
- - High initial cell number needed
- - Higher risk for purity failures

# High speed sorting



Genesis2 Head1 (Licensed To ST-CLO GEN2 G)

File About Gen2

Oriented 68.09% Dead 16.96%

PVR = 73%

Animal Code Location Instrument GEN 2 G

Notes:

Left Deflect % 37

StreamCenter -4

Right Deflect % 43

Abort Rate 4,618

Event Rate 44,640

Sort Rate X 7,817

Sort Rate Y 0

DeFanning 3.6

Puddle1 0

Puddle2 Main

Puddle3 0

Calculate Delay

Delay Confirm

Delay Sweep

Drop Delay 18

Fraction 16

Sample Setting 38.7243

Boost Is Off

Align Is Off REFRESH Stop Motors

Shutter Open PMT Ir LED Close

PMT Side Volts 301

PMT Forward Volts 360

Flow Run Off

GENESIS 2 Clear Nozzle Fluidic Flush

DropDriveAmp(V) 11.41

Phase(°) 107

Purity Test Is Off Stream LED

19-FEB-2013 09:35:30 CapsLock NumLock Status: Failed to connect to Server="", code=0

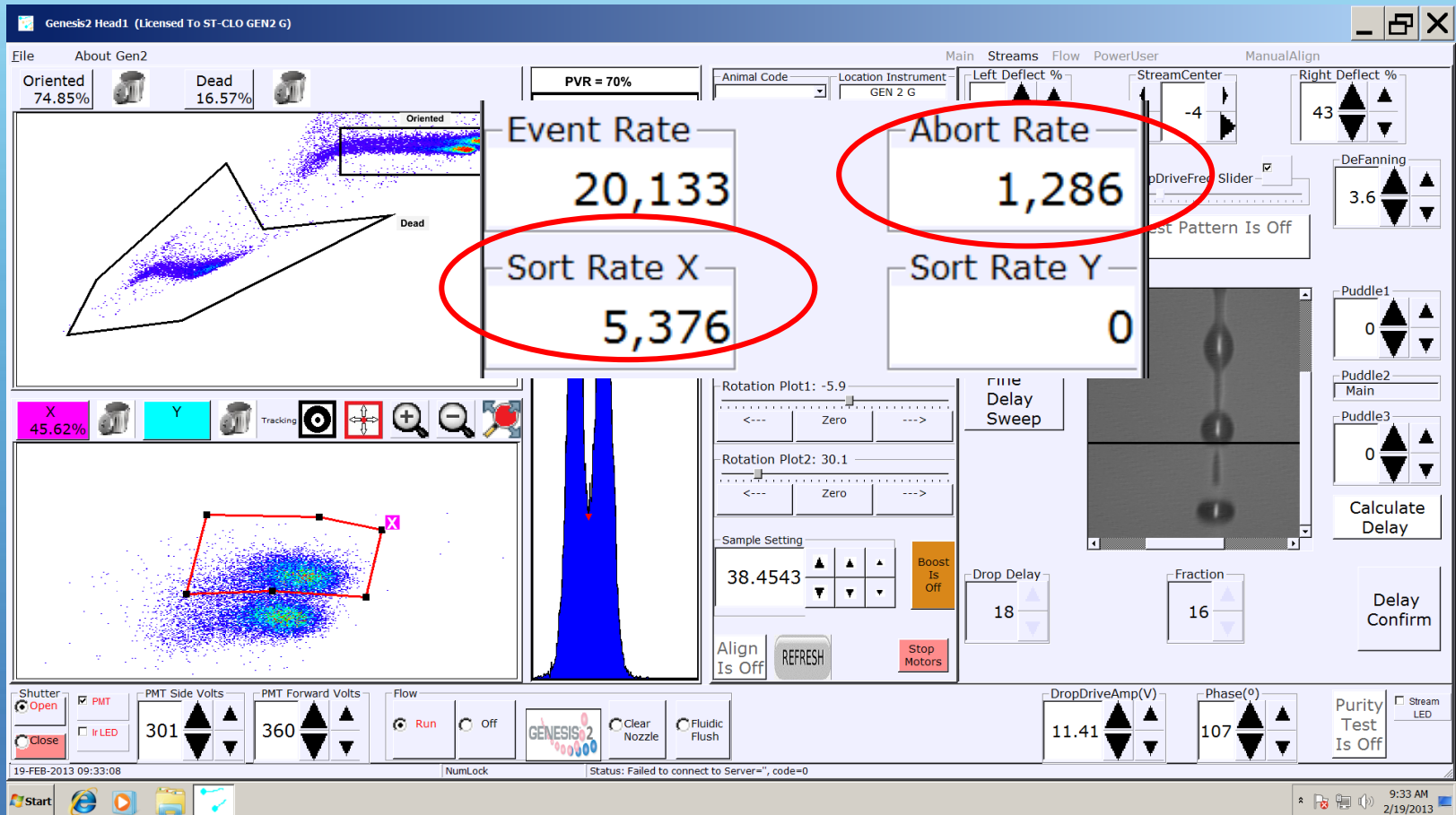
9:35 AM 2/19/2013



# High efficiency sorting

- + High number of sorted straws per ejaculate
- + Lower initial cell count needed
- + Lower purity failure
- - Lower number of produced straws per sorter per hour
- - More sorters needed per ejaculate

# High efficiency sorting



# Why high efficiency

- Logistics
  - more straws per ejaculate
  - lower transport cost/straw
  - happier customers
- Scientific
  - genomic bulls with low concentration and volume



# Combination HS and HE

- Maximum utilization of the semen
  - low cell number runs HE (genomic bulls)
  - high cell number runs HS (most straws/hour)
- We can optimize the ejaculate available



# Questions

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