

# spermvital Marketing gag or more successful insemination?

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**SpermVital technology is a Norwegian procedure for prolonging the life of sperm after insemination. To do this, the semen is deep-frozen in a special gel agar instead of the usual buffer solution.**

This causes the semen to dissolve more slowly in the uterus after insemination without affecting the viability of the sperm cells. This patented process doubles the lifespan of the sperm to up to 48 hours, which significantly increases the time available for successful fertilisation.

## In use in Styria since November 2015

SpermVital semen has consistently accounted for a relatively low three to four percent of Simmental cattle semen sales in recent years. Insemination reports involving SpermVital semen have been recorded for 5,076 animals since November 2015

Julia Marktfelder and Chiara Petutschnig, under the supervision of Prof. Margit Haberl, took a close look at the records and calving data of all these animals as part of their thesis at the Agricultural Research and Education Centre Raumberg-Gumpenstein.

## Aim of the thesis

The data provided by ZuchtData and LKV Steiermark will be used to develop a recommendation for all cattle breeders concerning the use of SpermVital-semen. The large volume of insemination data should allow a representative statement to be made about successful insemination, as well as recommended applications.

## Data preparation and evaluation

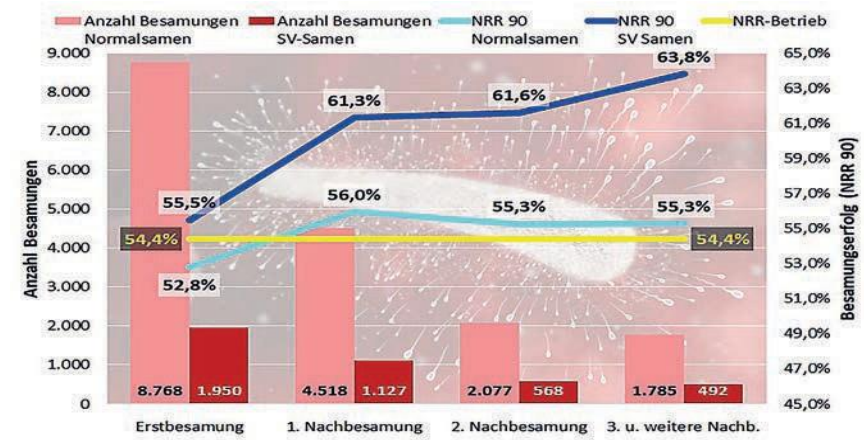
Non-return rates for repeat inseminations were also calculated for 46,000 insemination records on the basis of just under 21,000 calf records, provided that there was repeat calving, and it was thus ensured that the inseminated animal was still fertile at the time of insemination. Reported double inseminations, whether with SpermVital semen or normal semen, were removed from the evaluation in order to obtain a very clear comparison between normal insemination with normal semen and SpermVital semen. Essentially, it is noted that the average non-return rate for the farms that used SpermVital semen is below average, standing at 54.4 percent. In 2019, the average non-return rate for all Styrian control farms stood at 60.9 percent.

## Successful initial and repeat insemination

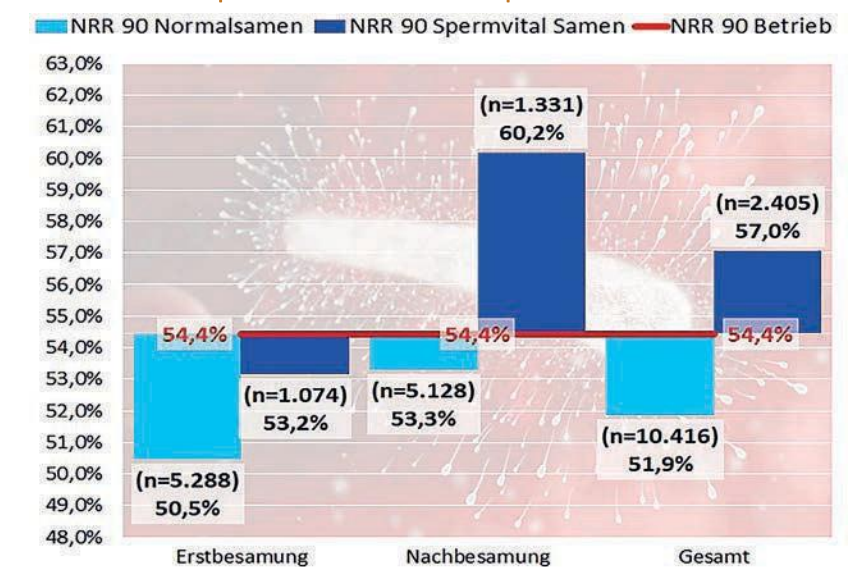
Insemination data for the period from 30.10.2015 (initial insemination report with SpermVital semen) to 31.12.2019 relating to 4,459 animals were evaluated and analysed. SpermVital semen has a superiority of 2.7 percent in initial insemination where no further insemination has occurred within 90 days. The advantage of

**Figure 1: Successful initial and repeat insemination**

Inseminations of all Styrian animals (n=4,459) that were inseminated once in their lives with SV semen and have a subsequent birth; insemination period 30.10.2015 to 31.12.2019



**Figure 2: NRR 90 of animals in which SpermVital semen was used, compared to the NRR 90 of the entire operation from the LKV annual report**



SpermVital semen is very evident in animals where initial insemination was unsuccessful. In the case of repeat inseminations, a superiority of 5 percent to over 8 percent can be assumed for SpermVital semen (Figure 1).

### Successful insemination in cows

The picture is similar for cows that have been inseminated once in their lives with a SpermVital semen. The success rate for initial insemination is 2.2 percent higher and no less than 6.1 percent higher for repeat inseminations, resulting in an increased overall success rate of 4.4 percent.

### Successful insemination in heifers

In heifers, the picture is clearly different. SpermVital semen has clear advantages in terms of the non-return rate for both initial and repeat insemination. With a superiority in excess of 5 percent in all categories, there is a clear improvement in successful insemination when using SpermVital semen for heifer insemination.

### Comparison of non-return rates with the entire operation

The associated non-return rates of the entire operation were also available for 2,405 SpermVital inseminations and more than 10,400 normal inseminations. On the one hand, it is very clear that farmers are using

SpermVital semen in animals with what is clearly below average fertility; while on the other, it is clear that more than half of the SpermVital semen has already been used for repeat inseminations. The average for successful insemination was clearly undercut for initial insemination with normal semen, but also for insemination with SpermVital semen. Once again, the strength of SpermVital semen is clearly evident in animals due for repeat insemination, which is also reflected in the overall success of 2.6 percent above the average and 5.1 percent above the level for normal semen (Figure 2).

### Calvings from repeat insemination with SpermVital

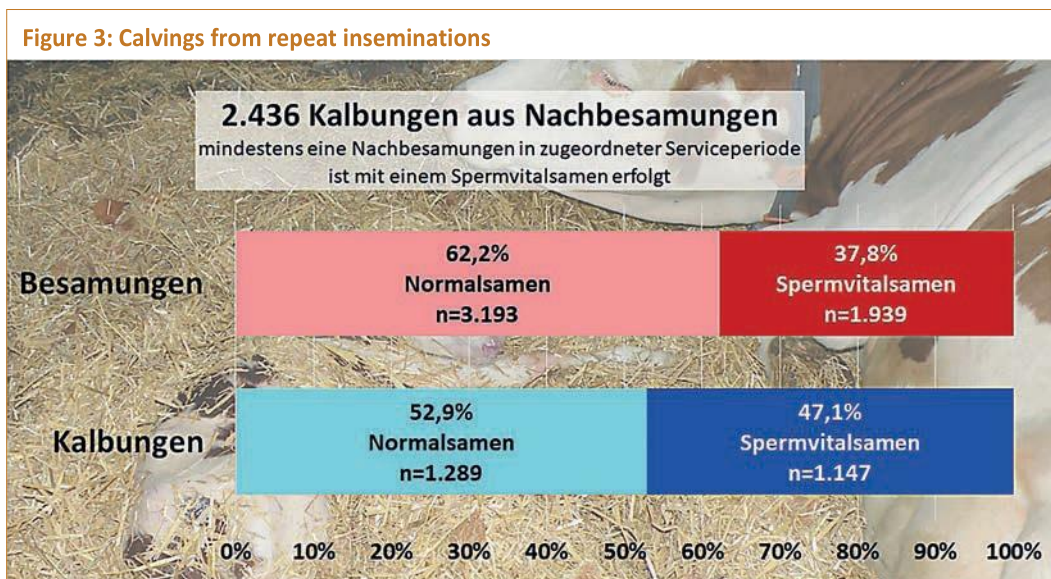
2,436 calves were born as a result of repeat inseminations of animals where SpermVital semen was used for one of the repeat inseminations. For these animals, 3,193 were inseminated with normal semen and 1,939

with SpermVital semen. Of these, 1,289 calves were born from inseminations with normal semen and

1,147 calves from inseminations with SpermVital semen. In percentage terms, 52.9 percent of calves were born from 62.2 percent of inseminations (using normal semen), and 47.1 percent of calves were born from 37.8 percent of inseminations (using SpermVital semen) (Figure 3).

### Conclusion

The results of this thesis are based on broad, representative data and allow a very good comparison to be drawn between SpermVital semen and normal semen. Insemination with SpermVital semen is more costly, but it pays off in many cases. In particular in the case of heifer insemination and repeat insemination of cows, inseminations using SpermVital semen show increased non-return rates, and ultimately a demonstrably higher number of calvings as well. ■



### Top bull semen available in SpermVital quality:

| Name           | Sire           | GZW | MW  | FW  | FIT | Mkg   | F%    | E% ND | Per | Kp  | EGW | Mbk | R   | B   | F   | E   |     |
|----------------|----------------|-----|-----|-----|-----|-------|-------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| GS RAZFAZ      | ROLLS          | 142 | 122 | 123 | 128 | +894  | -0.05 | -0.03 | 126 | 118 | 115 | 120 | 106 | 91  | 108 | 105 | 112 |
| GS DOC         | DREAM          | 136 | 133 | 119 | 105 | +1248 | +0.00 | -0.04 | 107 | 106 | 113 | 96  | 108 | 98  | 92  | 121 | 112 |
| GS MOJOS       | MORALIS        | 135 | 126 | 102 | 122 | +1122 | -0.13 | -0.03 | 125 | 125 | 105 | 108 | 103 | 96  | 93  | 104 | 121 |
| GS ZARAS       | ZAZU           | 135 | 115 | 126 | 123 | +774  | -0.19 | -0.02 | 128 | 103 | 95  | 122 | 115 | 110 | 105 | 120 | 128 |
| WEISSENSEE     | WABAN          | 133 | 124 | 102 | 120 | +789  | +0.02 | +0.07 | 120 | 125 | 106 | 117 | 106 | 100 | 98  | 104 | 113 |
| MAHARI Pp*     | GS MAHATMA Pp* | 133 | 123 | 115 | 119 | +731  | +0.08 | +0.02 | 121 | 112 | 113 | 119 | 98  | 91  | 110 | 103 | 118 |
| GS WEDER       | GS W1          | 133 | 120 | 111 | 121 | +975  | -0.15 | -0.07 | 122 | 109 | 90  | 113 | 106 | 104 | 95  | 108 | 117 |
| GS DEFACIO     | GS DER BESTE   | 132 | 123 | 105 | 115 | +868  | +0.01 | -0.04 | 118 | 98  | 107 | 115 | 116 | 112 | 98  | 112 | 129 |
| GS HEYMAN      | HERZAU         | 131 | 124 | 105 | 115 | +868  | +0.04 | -0.02 | 115 | 100 | 113 | 99  | 116 | 101 | 107 | 114 | 115 |
| GS HISTORY Pp* | HERMELIN       | 130 | 120 | 114 | 113 | +669  | +0.08 | -0.02 | 117 | 117 | 102 | 114 | 109 | 104 | 109 | 102 | 125 |