

Bluetongue (BTV) and Bull Fertility

Guidance for farm vets on bull breeding examinations during the BTV risk period

(With thanks to the Sheep Veterinary Society and the associated [guidelines on the examination of rams for breeding](#))

- To achieve good conception rates within a compact breeding period, bull fertility must be optimal before he is turned out or used for AI.
- BTV causes pyrexia and general illness that can suppress fertility, and evidence suggests it may also directly damage sperm production. In bulls previously infected with BTV-8, Müller *et al.* (2009) found a higher proportion of sperm defects than in uninfected bulls, and post-thaw semen motility remained impaired well beyond the point the bull was still PCR-positive.
- BTV can be shed in semen from infected bulls, adding a further route of spread within a herd (Bowen and Howard, 1984). This is relevant to natural service and to semen collected for AI.
- Spermatogenesis takes around 61 days in the bull (Staub and Johnson, 2018). Any insult during sperm production – such as pyrexia caused by BTV – can therefore suppress fertility for up to two months while he recovers.
- Clinical signs of BTV in cattle can be vague, or infection may be entirely subclinical. A pre-breeding bull examination ('bull MOT') is the best way to confirm he is fit for purpose and avoid large losses across the breeding period.
- BTV vaccines have not been formally tested for efficacy in bulls, but this is not unusual and is not expected to be a barrier to protection. Best practice is to vaccinate bulls ahead of the breeding period so full immunity is established before they are required for work.
- Bull breeding examinations and electroejaculation should **only** be carried out by those trained and competent in the relevant techniques.

Bull vaccinated before risk period*	Bull (unvaccinated, or vaccinated after start of risk period*) with no known BTV-related illness	Bull that had clinical BTV within the last two months before breeding starts
If high-risk breeding (single-sire, high cow-bull ratio, short breeding window, or semen for AI): Bull MOT + semen check	Leave examination as late pre-breeding as possible, but allow enough time to source a replacement bull if needed.	Very high risk of infertility this season.
If lower-risk breeding (multi-sire, low cow:bull ratio): Bull MOT; semen check for suspect bulls only	If high-risk breeding: Bull MOT + semen check	Do not test unnecessarily, and do not collect semen within two months of clinical illness.
	If lower-risk breeding: consider semen check case-by-case	Rest the bull until spermatogenesis has recovered, then assess fertility using the usual criteria.

Consider additional supporting management: assess semen risk before AI use, monitor return rates and scan early, extend the breeding period, add extra bull power, or delay the breeding start.

*Risk period from start of July, with some variation depending on accumulated temperature-days and location.

Müller, U., Kemmerling, K., Straet, D., Janowitz, U. and Sauerwein, H. (2009) 'Effects of bluetongue virus infection on sperm quality in bulls: A preliminary report', *Theriogenology*, 72(7), pp. 1040–1045. doi:10.1016/j.theriogenology.2009.06.021.

Bowen, R.A. and Howard, T.H. (1984) 'Transmission of bluetongue virus by intrauterine inoculation or insemination of virus-containing bovine semen', *American Journal of Veterinary Research*, 45(8), pp. 1684–1686.

Staub, C. and Johnson, L. (2018) 'Review: Spermatogenesis in the bull', *animal*, 12(S1), pp. s27–s35. doi:10.1017/S1751731118000435.