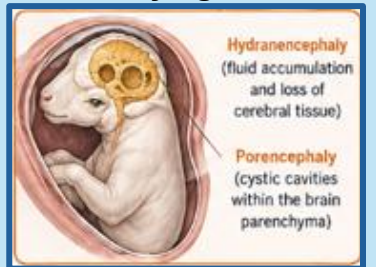
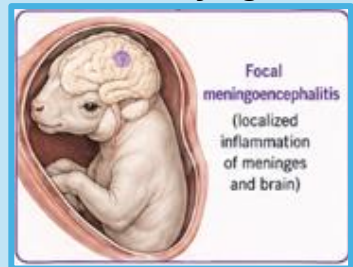


**Timelines for BTV-3 risk during cattle production cycles (in relation to timing of service, vector activity, and virus incubation risk). June 2026. APHA and Pirbright.** Please see explanatory notes at bottom of table and colour coding: *light blue = lower risk level, medium blue = medium risk level, and dark blue = higher risk level*

| Month of service | Pre-mating                                                                                                                                                 | 0-80 days gestation                                                                                                                                                                                            | 80-125 days gestation                                                                                                                                                                                                    | 125 – 280 days gestation                                                                                                                                                                                                                          |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |                                                                                                                                                            |                                                                                                                              |                                                                                                                                       |                                                                                                                                                                |
| <b>January</b>   | <u><b>Dec - Jan</b></u><br>No - very low midge activity<br>No midge transmission risk<br><b>Low infertility risk for bulls from previous vector season</b> | <u><b>Jan- April</b></u><br><b>Low - medium midge activity</b><br>No midge transmission risk<br>Very low early gestation loss risk<br>Very low fetal damage risk                                               | <u><b>Late March – Early May</b></u><br><b>Medium - high midge activity</b><br>Very low midge transmission risk<br>Very low abortion risk<br>Very low fetal damage risk                                                  | <u><b>May – Early Nov</b></u><br><b>High midge activity</b><br><b>Medium - high midge transmission risk</b><br><b>Medium abortion or stillbirth risk</b><br><b>Low localised brain lesion risk</b><br><b>Vertical transmission risk</b>           |
| <b>February</b>  | <u><b>Jan - Feb</b></u><br>Very low midge activity<br>No midge transmission risk<br><b>Low infertility risk for bulls from previous vector season</b>      | <u><b>Feb – May</b></u><br><b>Medium - high midge activity</b><br>Very low midge transmission risk<br>Very low early gestation loss risk<br>Very low fetal damage risk                                         | <u><b>Late April – Early June</b></u><br><b>Medium - high midge activity</b><br><b>Low midge transmission risk</b><br><b>Low abortion risk</b><br><b>Low fetal damage risk</b><br><b>Moderate - severe brain lesions</b> | <u><b>June – Early Dec</b></u><br><b>High - medium midge activity</b><br><b>High – medium midge transmission risk</b><br><b>Medium abortion or stillbirth risk</b><br><b>Low localised brain lesion risk</b><br><b>Vertical transmission risk</b> |
| <b>March</b>     | <u><b>Feb – March</b></u><br>Very low midge activity<br>No midge transmission risk<br>Very low infertility risk for bulls from previous vector season      | <u><b>March – June</b></u><br><b>Medium - high midge activity</b><br><b>Low midge transmission risk</b><br><b>Low early gestation loss risk</b><br><b>Low fetal damage risk</b><br><b>Severe brain lesions</b> | <u><b>Late May – Early July</b></u><br><b>High midge activity</b><br><b>Medium midge transmission risk</b><br><b>Medium abortion risk</b><br><b>Medium fetal damage risk</b>                                             | <u><b>July – Early Jan</b></u><br><b>High midge activity</b><br><b>High midge transmission risk</b><br><b>Medium abortion or stillbirth risk</b><br><b>Low localised brain lesion risk</b><br><b>Vertical transmission risk</b>                   |

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|              |                                                                                                                                                     |                                                                                                                                                                               | Moderate - severe brain lesions                                                                                                                                                |                                                                                                                                                                                                                    |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Month served | Pre-mating                                                                                                                                          | 0-80 days gestation                                                                                                                                                           | 80-125 days gestation                                                                                                                                                          | 125-280 days gestation                                                                                                                                                                                             |
| April        | <u>March – April</u><br><b>Low midge activity</b><br>No midge transmission risk<br>Very low infertility risk for bull from previous vector season   | <u>April - July</u><br>Medium - high midge activity<br>Medium midge transmission risk<br>Medium early gestation loss risk<br>Medium fetal damage risk<br>Severe brain lesions | <u>Late June – Early Aug</u><br>High midge activity<br>High midge transmission risk<br>High abortion risk<br>High fetal damage risk<br>Moderate - severe brain lesions         | <u>Aug – Early Feb</u><br>High midge activity<br>High midge transmission risk<br>Medium abortion or stillbirth risk<br><b>Low localised brain lesion risk</b><br>Vertical transmission risk                        |
| May          | <u>April – May</u><br>Medium midge activity<br><b>Low midge transmission risk</b><br>Very low infertility risk for bull from previous vector season | <u>May – Aug</u><br>High midge activity<br>High midge transmission risk<br>High early gestation loss risk<br>High fetal damage risk<br>Severe brain lesions                   | <u>Late July -Early Sept</u><br>High midge activity<br>High midge transmission risk<br>High abortion risk<br>High fetal damage risk<br>Moderate - severe brain lesions         | <u>Sept – Early March</u><br>Medium - high midge activity<br>High midge transmission risk<br>Medium abortion or stillbirth risk<br><b>Low localised brain lesion risk</b><br>Vertical transmission risk            |
| June         | <u>May – June</u><br>High midge activity<br>Medium midge transmission risk<br>Medium infertility risk for bulls and cows from current vector season | <u>June – Sept</u><br>High midge activity<br>High midge transmission risk<br>High early gestation loss risk<br>High fetal damage risk<br>Severe brain lesions                 | <u>Late Aug – Early Oct</u><br>High midge activity<br>High midge transmission risk<br>High abortion risk<br>High fetal damage risk<br>Moderate - severe brain lesions          | <u>Oct – Early April</u><br><b>Low - Medium midge activity</b><br>Medium midge transmission risk<br>Medium abortion or stillbirth risk<br><b>Low localised brain lesion risk</b><br>Vertical transmission risk     |
| July         | <u>June – July</u><br>High midge activity<br>High midge transmission risk<br>High infertility risk for bulls and cows from current vector season    | <u>July – Oct</u><br>High midge activity<br>High midge transmission risk<br>High early gestation loss risk<br>High fetal damage risk<br>Severe brain lesions                  | <u>Late Sept – Early Nov</u><br>Medium midge activity<br>Medium midge transmission risk<br>Medium abortion risk<br>Medium fetal damage risk<br>Moderate - severe brain lesions | <u>Nov – Early May</u><br><b>Low midge activity</b><br><b>Low midge transmission risk</b><br><b>Low abortion or stillbirth risk</b><br><b>Low localised brain lesion risk</b><br><b>Vertical transmission risk</b> |

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| Month served | Pre-mating                                                                                                                                                   | 0-80 days gestation                                                                                                                                                   | 80-125 days gestation                                                                                                                                             | 125-280 days gestation                                                                                                                                                                           |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| August       | <u>July – August</u><br>High midge activity<br>High midge transmission risk<br>High infertility risk for bulls and cows from current vector season           | <u>Aug – Nov</u><br>High midge activity<br>High midge transmission risk<br>High early gestation loss risk<br>High fetal damage risk<br>Severe brain lesions           | <u>Late Oct – Early Dec</u><br>Low midge activity<br>Low midge transmission risk<br>Low abortion risk<br>Low fetal damage risk<br>Moderate - severe brain lesions | <u>Dec – Early June</u><br>Low – high midge activity<br>Low midge transmission risk<br>Low abortion or stillbirth risk<br>Low localised brain lesion risk<br>Vertical transmission risk          |
| September    | <u>Aug – Sept</u><br>High midge activity<br>High midge transmission risk<br>High infertility risk for bulls and cows from current vector season              | <u>Sept – Dec</u><br>High - medium midge activity<br>High midge transmission risk<br>High early gestation loss risk<br>High fetal damage risk<br>Severe brain lesions | <u>Late Nov – Early Jan</u><br>Low midge activity<br>Low midge transmission risk<br>Very low abortion risk<br>Very low fetal damage risk                          | <u>Jan – Early July</u><br>Low – high midge activity<br>Medium midge transmission risk<br>Low abortion or stillbirth risk<br>Low localised brain lesion risk<br>Vertical transmission risk       |
| October      | <u>Sept – Oct</u><br>High – medium midge activity<br>Medium midge transmission risk<br>Medium infertility risk for bulls and cows from current vector season | <u>Oct – Jan</u><br>Low midge activity<br>Medium midge transmission risk<br>Medium early gestation loss risk<br>Medium fetal damage risk<br>Severe brain lesions      | <u>Late Dec – Early Feb</u><br>Very low midge activity<br>No midge transmission risk<br>Very low abortion risk<br>Very low fetal damage                           | <u>Feb – Early Aug</u><br>Medium - high midge activity<br>High midge transmission risk<br>Medium abortion or stillbirth risk<br>Low localised brain lesion risk<br>Vertical transmission risk    |
| November     | <u>Oct – Nov</u><br>Low - medium midge activity<br>Low midge transmission risk<br>Medium infertility risk for bull from current vector season                | <u>Nov – Feb</u><br>Very low midge activity<br>Low midge transmission risk<br>Low early gestation loss risk<br>Low fetal damage risk<br>Severe brain lesions          | <u>Late Jan – Early March</u><br>Very low midge activity<br>No midge transmission risk<br>Very low abortion risk<br>Very low fetal damage risk                    | <u>March – Early Sept</u><br>High midge activity<br>Medium - high midge transmission risk<br>Medium abortion or stillbirth risk<br>Low localised brain lesion risk<br>Vertical transmission risk |

| Month served | Pre-mating                                                                                                                                               | 0-80 days gestation                                                                                                                             | 80-125 days gestation                                                                                                                                           | 125 – 280 days gestation                                                                                                                                                                                                           |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| December     | <u>Nov – Dec</u><br>Very low midge activity<br>No midge transmission risk<br><b>Medium infertility risk for bull from previous/current vector season</b> | <u>Dec – March</u><br>Very low midge activity<br>No midge transmission risk<br>Very low early gestation loss risk<br>Very low fetal damage risk | <u>Late Feb – Early April</u><br><b>Medium midge activity</b><br>No midge transmission risk<br>Very low early gestation loss risk<br>Very low fetal damage risk | <u>April – Early Oct</u><br><b>High midge activity</b><br><b>Medium - high midge transmission risk</b><br><b>Medium abortion or stillbirth risk</b><br><b>Low localised brain lesion risk</b><br><b>Vertical transmission risk</b> |

## Notes for table:

- **Midge activity** is based on average activity recorded in midge trap sites.
- **Midge transmission risk** is the risk of the extrinsic incubation period of the virus within the midge being able to be completed.
- Where the time period spans a greater temperature range, the risks vary more during that gestational period. For example, January - March midge activity would be considered very low, but end of May and June are very high.
- **Early gestation loss** indicates risk of embryo loss/failure, resorption, or early abortion.
- **Fetal damage** indicates damage from viraemia of the dam resulting in fetal pathology, such as brain lesions.
- For **brain lesions**, the colour / risk level indicates the potential severity of brain lesions acquired during that time of gestation.
- **Vertical transmission risk** is risk of transplacental transmission of virus with subsequent birth of live calf that is PCR positive.
- In a study by Darpel et al (<https://pmc.ncbi.nlm.nih.gov/articles/PMC3044536/>), of 61 calves born to previously positive dams, 21 were BTV (PCR) positive. Five of these had compromised health, (three of the five died shortly after birth and two were dummy calves). Virus was isolated from only one of the 21 BTV positive calves. While transplacental transmission occurred in 33% (21/61) of cases, 24% (5/21) of these (or 8% [5/61] of all tested) resulted in health issues for the calves.
- If transplacental transmission occurs, calf health could be compromised.
- De Clercq et al found 10% transplacental transmission rates in the field <https://onlinelibrary.wiley.com/doi/10.1111/j.1865-1682.2008.01044.x>, and interestingly concluded that ‘the combined serological and real-time PCR (RT-qPCR) result of pregnant dams gives no indication of the infection status of the offspring, except in the case of a double negative result’. This suggests clinical outcome/crossing of the placenta by BTV is somewhat stochastic.