

Decision Support System for Barley Yellow Dwarf Virus

FACTSHEET

BYDV is a virus that can cause damage to wheat and barley.

Aphids can transmit barley/cereal yellow dwarf virus (BYVD). Initially, aphids colonise relatively few crop plants. However, the second generation tends to move away from the originally colonised plants, and spread the virus over the field. Virus infections can lead to relative dwarfism of the cereal plants and significantly lower yields. Emergence of the second aphid generation can be predicted based on accumulated daily air temperatures above 3°C, using the T-sum calculation. At T-sum 170 DD, the dangerous second generation is likely to be present.



Control with help of DSS on platform.ipmdecisions.net

On platform.ipmdecisions.net you find a DSS for the BYDV. This DSS assumes that the user will update the date of emergence and last insecticide application, if any. When no aphids are found in the field at T-Sum 170 DD, or after insecticide application, a new calculation starts.



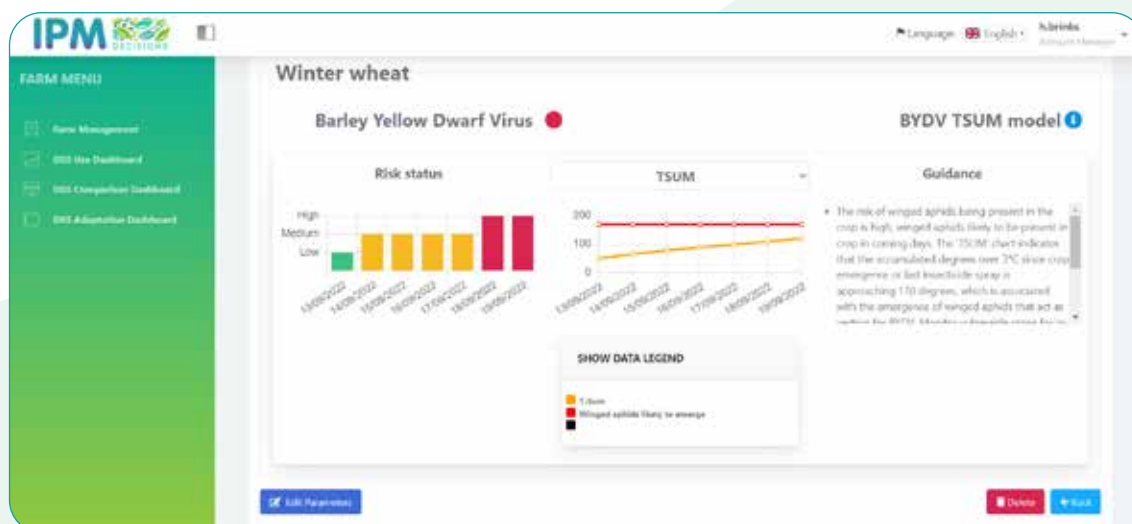
DSS parameters

It is important to set the parameters correctly, as the model uses the parameter settings for the calculation of the risk status:

- Start day or crop emergence date. The T-sum calculation starts from this date. Inaccurate start dates will affect risk status. Risk will be underestimated if the input start date is too late. Risk will be overestimated if the input start date is too early. Too early gives an over estimation of the risk, too late starting date an under estimation of the risk.
- DSS End Date/Growth stage 31. The model provides risk information up to growth stage 31.

DSS output

The DSS gives information about the risk of winged aphids being present in the field and spreading the virus. The DSS displays; the T-Sum of the current day, the prediction for the development of the T-Sum over the coming days, and the expected date of reaching the threshold of 170 DD, which is associated with the emergence of winged aphids. The example shows risk information for a winter wheat crop that has emerged.



Where can DSS be used

The DSS was adapted from work carried out in the UK, and is considered applicable, but not yet validated, in Belgium, Luxembourg, Netherlands, France, Germany, Republic Ireland and Denmark. The DSS adaptation dashboard can help to validate the DSS in other countries.

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