

Use of an under-sown barley cover crop to control virus.

BBRO's experience to date

- There is some limited data that shows where there is an early aphid migration into sugar beet, having an under-sown barley crop can reduce virus symptoms. This is thought to be associated with reducing the ability of aphids to identify young beet crops thus diverting them away.
- This tactic is considered to be most effective when aphids arrive early in crops with small canopies. This may be less effective when aphids migrate into the crop later in the season when canopies are more established.
- BBRO monitored some sites in 2020, assessing virus levels and beet yield. The graphs below show that there were reductions in virus levels, especially BYV in many of the areas where an under-sown crop of barley was drilled.

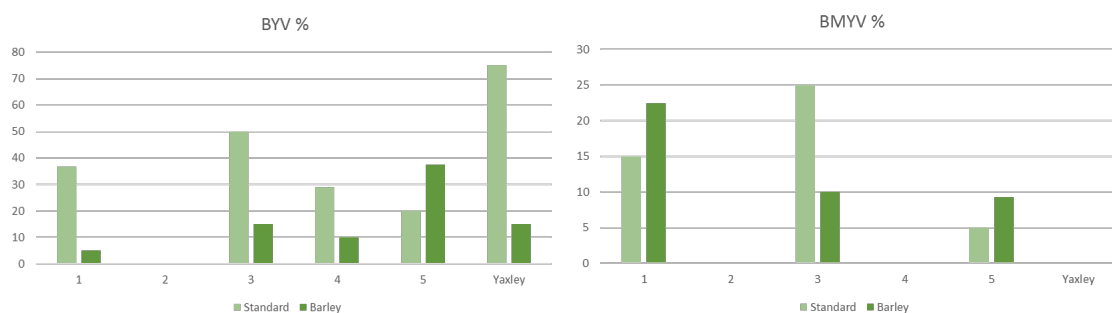


Fig 1: Graphs above show levels of virus across fields of both standard and under-sown barley. Please note scale difference on Y axis, showing prevalence of BMVYV was lower than BYV.

- Beet yields were variable and an increase in yield was not associated with either the under-sown barley or lower virus levels at all sites. Overall, there was a positive yield response at one site, a neutral effect at another and a reduction at a third. The reduction in yield was associated with the barley outcompeting the beet and being destroyed too late. **This is a key risk of using this approach and needs careful management.**

Remember that these were strips in fields and not specifically designed trials to test this approach, so when interpreting results, be aware that other factors may have influenced results. We are grateful to those growers who have been pioneering this approach and gave us access to their crops.



- Aim to drill barley at about a 50-60kg/ha seed rate, 5-7 days before drilling beet. If using the barley to stabilise windblow you will clearly need to drill the barley earlier.
- Ensure the beet canopy is well established, ideally beyond the 4-6 leaf stage and strongly growing before destroying the barley cover. The decision will need to be based on how vigorous the cover crop and the weather forecast to assess how quickly the cover will be killed. We have measured reductions in beet yields where the cover crop has been destroyed too late and has competed with the crop.
- Use of a graminicide as opposed to a more general herbicide may help reduce the risk of herbicide damage to the beet. Remember to allow some time for the herbicide to work fully and don't let the cover biomass get too vigorous before applying. It is difficult to be precise on this as every situation will be different, but correct timing of the destruction of the cover crop is important.
- Use of Conviso SMART beet varieties may be an option as this provides a slightly larger application window in the beet (4-8 true leaves on the label) for controlling the cover crop, but don't compromise herbicide timings for the control of other weeds (4-true leaf stage of fat hen/other weeds is the key trigger) Just remember that it is not recommended to drill Conviso SMART varieties before mid-March to reduce the bolting risk).