VERSION TWO - UPDATED DECEMBER 2024



				SUGAR Research Organisation				
	Industry strategies for the control of Virus Yellows (VY) in sugar beet							
	2020	2020 2022		2024	2026		2028	2030 onwards
Support traditional seed breeding programmes	First partially VY industry Recom varieties). Parti	tolerant variety "Maruscha KWS" available o mended (seed) List (yield drag compared to al tolerance to Beet Mild Yellowing Virus (Bl	on the elite VIYV).	New seed working model brings VY tolerant varieties to market sooner to accelerate adoption – novel ratings.	Additional varieties with partial tolerance, but with continued yield drag relative to the susceptible alternatives.		Continued development and adoption of tolerant varieties with less yield drag compared to elite varieties onto the BBRO Recommended List.	
Gene Editing (GE)	Genotype/phen	otype evaluation, data mining and gene map	oping	Innovate UK grant awarded for collaborative project between British Sugar, The John Innes Centre and Tropic Biosciences.	Viral silencing efficiency of GEiGS [®] solutions validated in plants. Development of sugar beet transformation platform.		Generation of GE plants and validation in small scale. I screened to ensure VY resistance expresses with detrimental traits.	
	towards i	identification of genes to be silenced.		Viral target genes identified enabling GEiGS [®] silencing solutions to be generated and validated (in cells).			Escalate to field trials ahead of starting N	and multiply into commercial volumes ational and Recommended List trials.
Improved seed germination and rapid establishment	Improved knowle by advancing cr practice on	Improved knowledge exchange to optimise mature plant resistance by advancing crop development to 12-leaf stage, including best practice on soil health, cultivations and drill operations.						
Innovative grower practices and IPM (Integrated Pest	Technical supj husbandry ai applica	bort to drive knowledge exchange to improvend hygiene measures, including development tion of Integrated Pest Management (IPM).	e crop t and	 Further field trials exploring the merits of alternative cover/companion crops including endophytes, beneficial hosts, camouflage and deterrents. Further testing of evolving & novel IPM approaches to ensure robust strategies can be applied in the field effectively. Utilising compounds derived from mature sugar beet to limit VY infection. 				
Management)	Field trials to determine how cover crops & camouflage methods can deter aphids feeding on sugar beet plants.		ge ts.	Evaluate the viability of deter (coloured dyes and AgriOdor	rrents r™).	 Work with commercial companies to trial new aphicides under field conditions towards full approval of a 3-5 established sustainable spray programme. Reviewing threshold for spray/treatment. 		
Sustainable spray programme	Flonicamid and acetamiprid fully-approved. Emergency Authorisations for sustainable 3-spray programmes.		y	Trialling new (<i>to industry</i>) sugar beet aphicides.		 Work with commercial companies to deliver companion/cover cropping products to growers capable of deterring aphid pressure in sugar beet plants. 		
Aphid forecasting, monitoring and reporting	Aphid forecastin model which The BBRO's Yel	g is undertaken using the Rothamsted Resea accurately predicts Virus Yellows incidence. low Water Pan network monitors and inforn growers of local aphid pressure.	nrch ns	Ongoing work to improve specifi alongside weekly monitoring an late spring and summe	icity of forecasting, Explore and d reporting during r months. Co		d analyse the impact of integrating hyperspectral cameras to improve monitoring of aphids at field level. ontinuation of monitoring and reporting to growers.	
Knowledge	Knowledge exchange between whole industry to continue throughout the year: sharing the latest Virus Yellows research, advising on best-practice solutions to implement on farm, and							