

# Stepwise development of an efficient method to control *Potato Virus Y* spread in seed potato fields

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*Potato Virus Y* (PVY) is a Potyvirus transmitted by aphids in potato fields. For susceptible cultivars, the association of mineral oil and aphicide is generally used to control PVY spread in seed potato fields. Mulching and border crops are also reported as alternative control methods. Four years of field trials have been carried out in Switzerland to compare common and alternative methods to control PVY spread. Four aphicides have been tested with foliage application: Lambda-Cyhalothrine, Triazamate, Pymetrozine and Imidacloprid. One commercial mineral oil and one commercial plant oils have been evaluated for virus control. Acibenzolar-S-methyl has been tested as elicitor. To reduce PVY transmission by aphid behaviour disruption, mulching,

oat intercropping and film covering were tested eventually associated with mineral oil. Each control method has been tested at least one year. The results indicate that aphicides are effective to control the aphid populations in the field but inefficient to control PVY spread. Acibenzolar-S-methyl has no effect. Mineral oil has been shown to be efficient to control PVY spread but has no effect on aphid populations. Plant oils were less efficient than mineral oil in virus spread limitation. Mulching, oat intercropping and film cover reduce aphid populations on potato plants and PVY transmission. We concluded that the association of mineral oil with mulch or oat strengthens the control of aphid populations and PVY transmission on seed potato plants.