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Towards development of next generation resistance to Soybean Mosaic Virus
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To date, 67 viruses have been identified from soybean, and 27 are considered as a threat to the soybean industry. Among them, Soybean mosaic virus (SMV) is the most prevalent virus and is recognized as the most serious, long-standing problem in almost all soybean producing areas in the world. The use of genetic resistance is the most effective means to control SMV. Extensive screening for soybean germplasm resistant to SMV resulted in the identification of three independent resistance genes, i.e., Rsv1, Rsv3 and Rsv4, each conferring resistance to SMV with strain specificities. However, recent data from our research and several other international laboratories suggest that the current resistance is very fragile and SMV mutants with a single nucleotide mutation in the viral genome may break down the resistance. Thus, incorporation of all three resistance genes in a soybean cultivar through gene pyramiding may provide durable resistance to SMV.