

SUPPLEMENTAL MATERIAL OF

Resistance-breaking strains of tomato spotted wilt virus hamper
photosynthesis and protein synthesis pathways in a virus accumulation-
dependent manner in Sw5-carrying tomatoes

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Table S1. Primers used in the reverse-transcription quantitative PCR assay of the greenhouse experiment.

Gene		Sequence (5'->3')	Amplicon length (bp)
Solyc01g095080.3.1	1-aminocyclopropane-1-carboxylic acid (ACC) synthase 2	F: ATTGGGCACCACTTTGGACA R: TGGCTGCGTAGATTCGTCA	98
Solyc10g054010.1.1	BZIP transcription factor	F: GGCTGAAAACCTCAATCCTAAGAGC R: TGTTGCCGTTGTAGCTCAAGA	98
Solyc04g071600.3.1	Absciscic acid stress ripening 5	F: ACATCACCGTTTGTTCACC R: TGGAGATGGCTATGGTGCTT	90
Solyc06g062460.3.1	bHLH transcription factor 136	F: CCAGCAAGCAAGTTCTTCGG R: AGAGCTCACTGGCCTGAATG	109
Solyc04g072280.3.1	Laccase	F: CATCACAATTTCCCCGGGTG R: ACGCTATTGTAGGCTTTCGC	96
Solyc10g081980.2.1	Late embryogenesis abundant (LEA) hydroxyproline-rich glycoprotein	F: ATCGACATGGACGGGGAAG R: GAGGACGATGAGGATGGTGA	101
Solyc10g079170.2.1	Leucine-rich repeat receptor-like (LRR-RL) tyrosine-protein kinase	F: ACAAAGGGCTCTGTGGTGAG R: ACCAGAACCAACAACAGCCA	113
Solyc07g053480.4.1	Ras-related protein	F: ATACCGTGTCTGAGCAAGA R: TGCTGAAATGTCGTCCTTGC	103
Solyc08g083320.4.1	Starch synthase	F: ACGTGGGGTTGATCGTGTTT R: AATCCAGTCCAGCTTTGGGG	103
Solyc05g010470.4.1	WD40 repeat	F: GGGTTCTCGCCTGATTGTTT R: ACATCCCCAAGTTCCATGCT	107
Solyc07g056280.3.1	WRKY transcription factor 30	F: ACATGGAGGGTCAATGGATCA R: TGTGGACAAACAACCTCAGAGG	90
Solyc07g056420.4.1	Glutathione S-transferase	F: CCCCTTTGCTCCCTTCTGAT R: GTTCGTCTCCCGTTGCTGTA	90
Solyc00g500066.1.1	Photosystem I assembly protein Ycf4	F: TTTCGTTGGGGATTTCCGGG R: ACACGACGAGCATAAATACCCT	110
Solyc00g500322.1.1	ATP synthase subunit b	F: TTCGAAATTCAGAAGAACTGCGT R: AAAGTCTCGGCTTCGGTTT	95
Solyc02g080890.3.1	WRKY transcription factor 6	F: CAGTCCGAAAACAGGTGCAA R: CATGGCTGCTGGTGGTAATG	98
Solyc03g078400	Actin (housekeeping)	F: AGGCAGGATTTGCTGGTGATGCT R: ATACGCATCCTTCTGTCCCATTCCGA	107
	Tomato spotted wilt virus, non-structural protein (NSm gene) (Prigigallo et al. 2019)	F: TTTGGAACCTATGAATCTGATTC R: CCGTTGCCAACAAAAAGATCATT	122

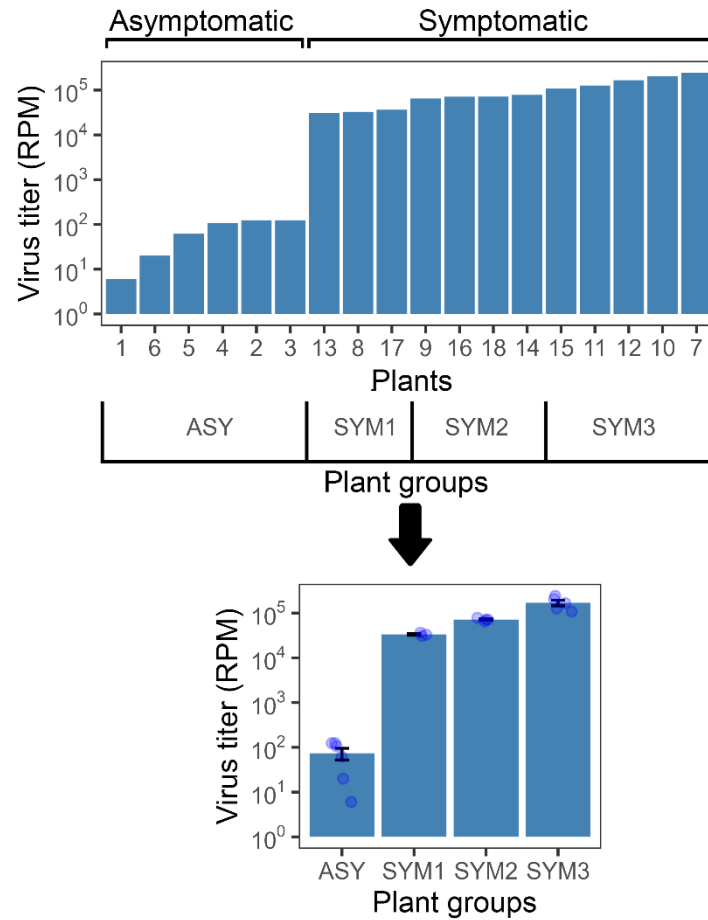


Figure S1. Accumulation of tomato spotted wilt virus (TSWV) in leaves of tomato plants sampled from the field. Plants were grouped according to their virus titer. Virus titer is expressed as reads per million (RPM) mapping to the TSWV genome.

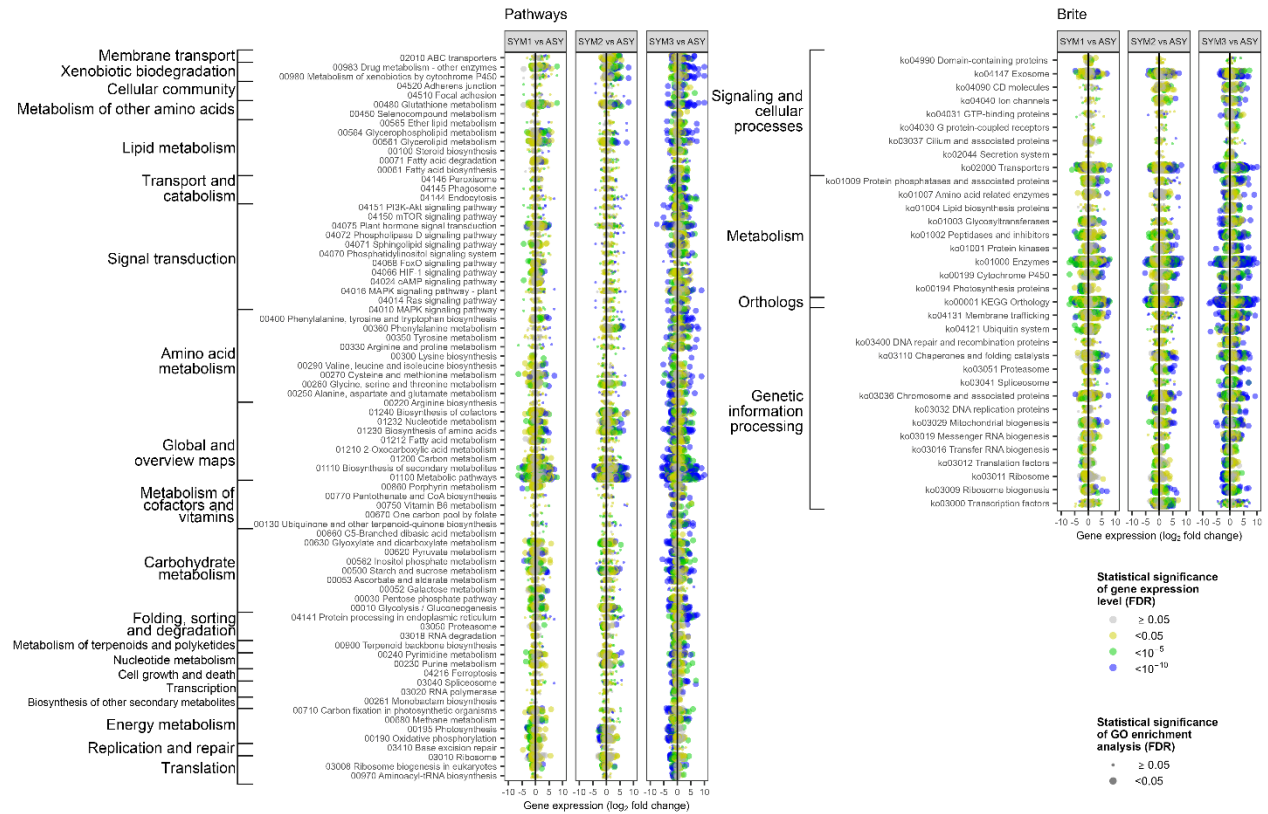


Figure S2. KEGG annotation of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

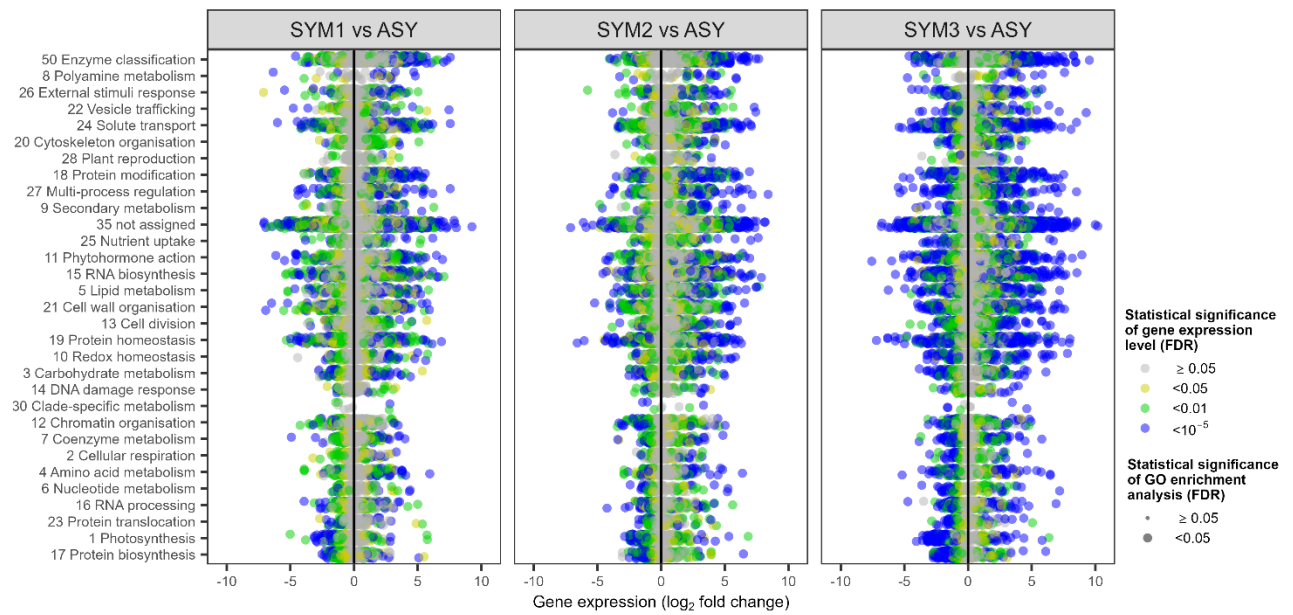


Figure S3. MapMan annotation of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

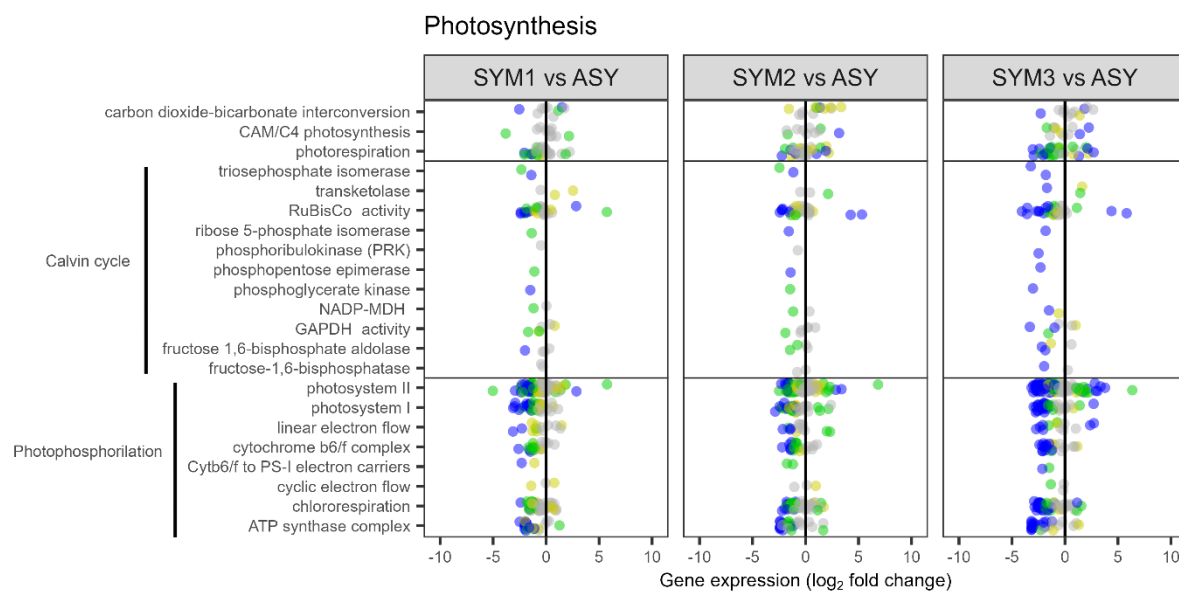


Figure S4. Photosynthesis pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

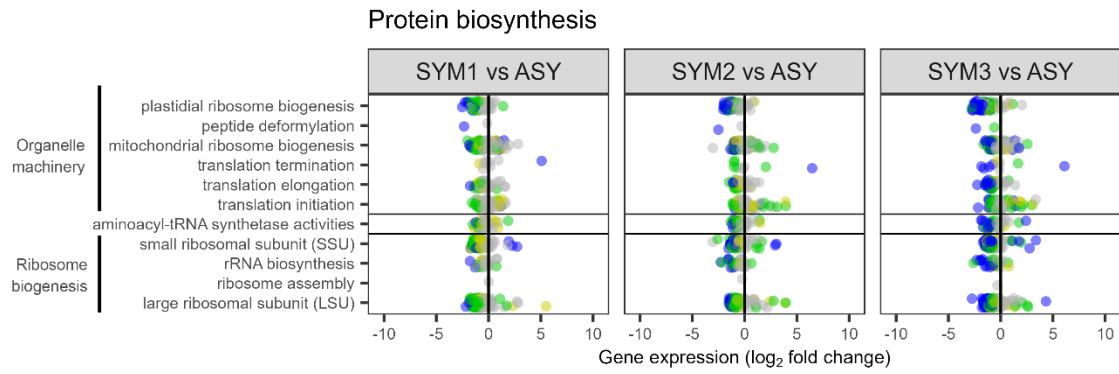


Figure S5. Protein biosynthesis pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

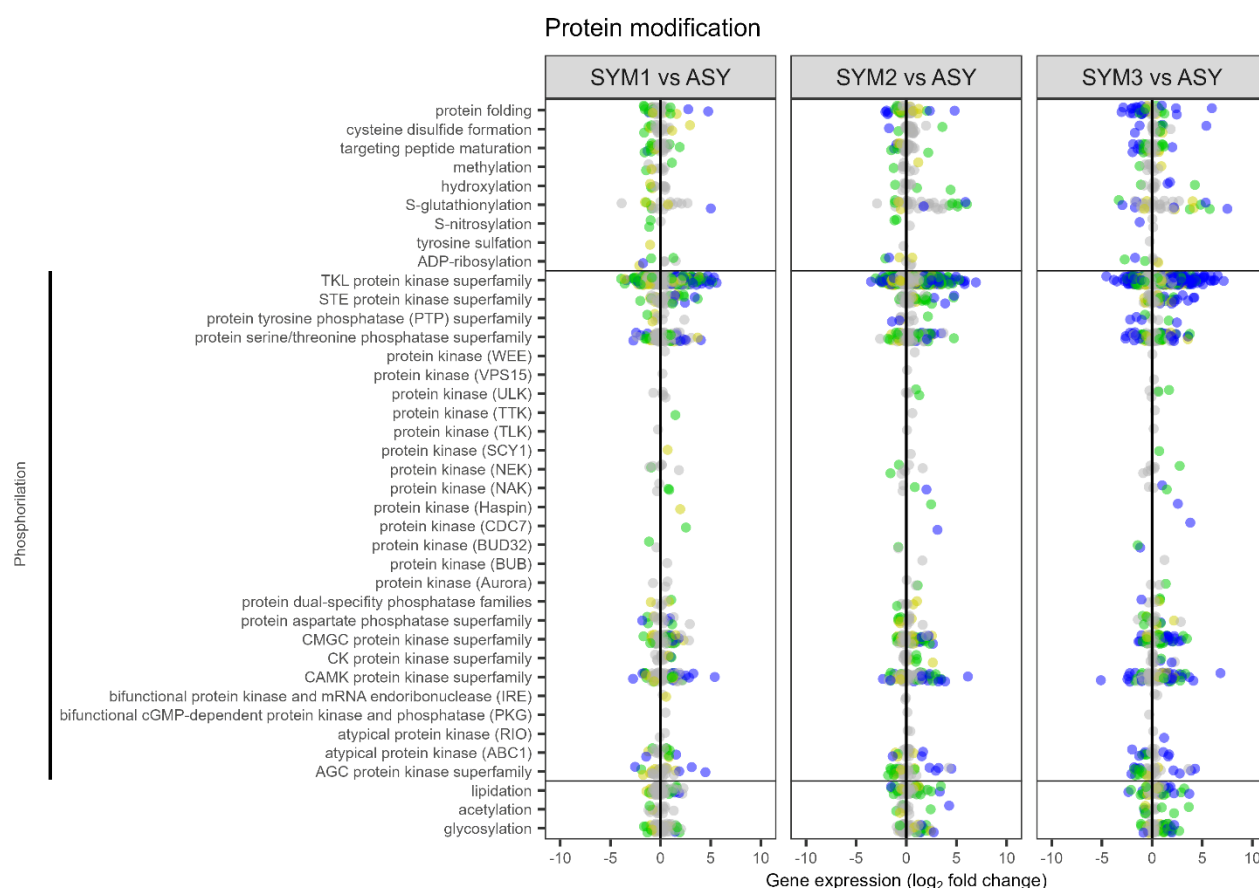


Figure S6. Protein modification pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

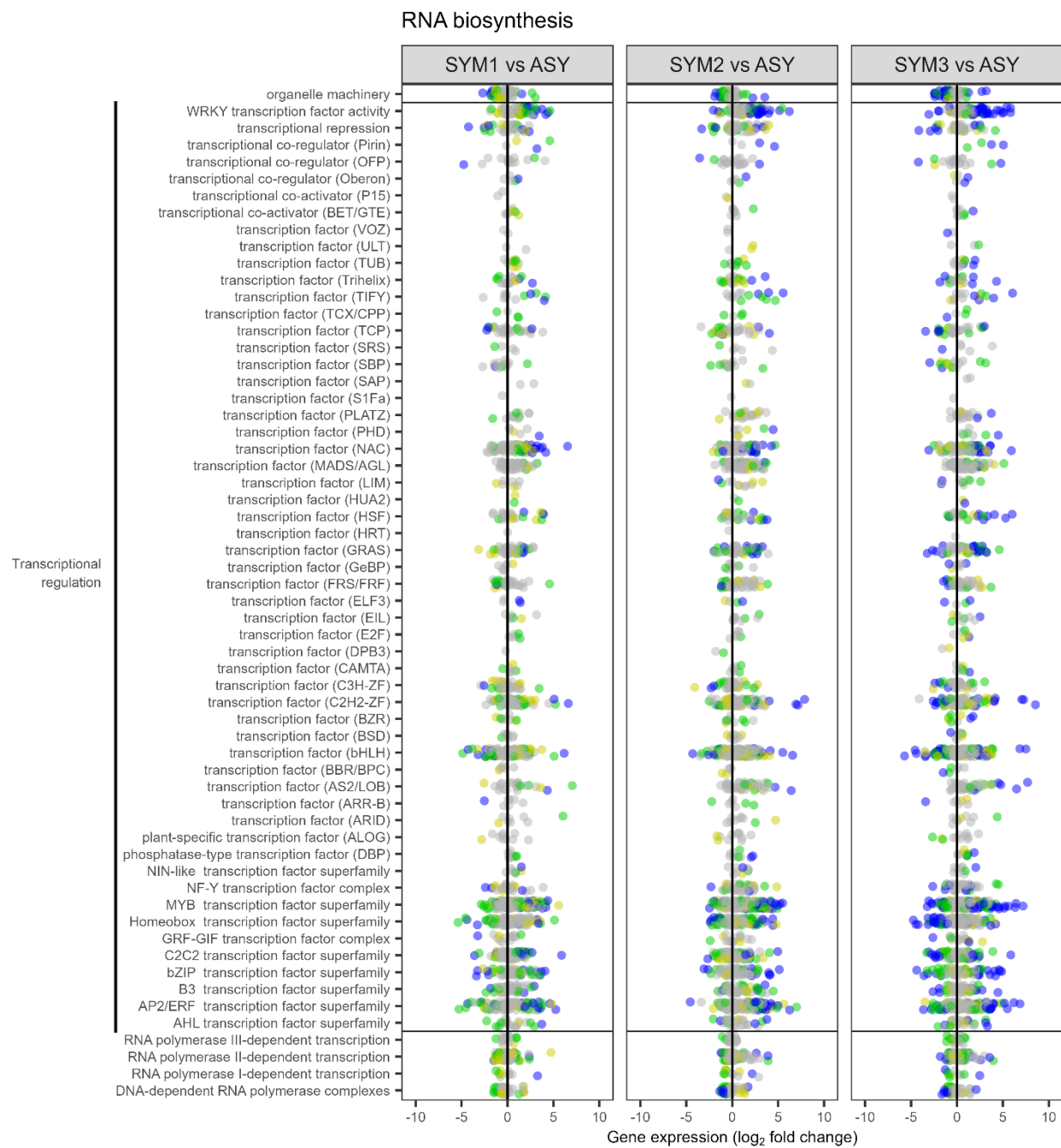


Figure S7. RNA biosynthesis pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

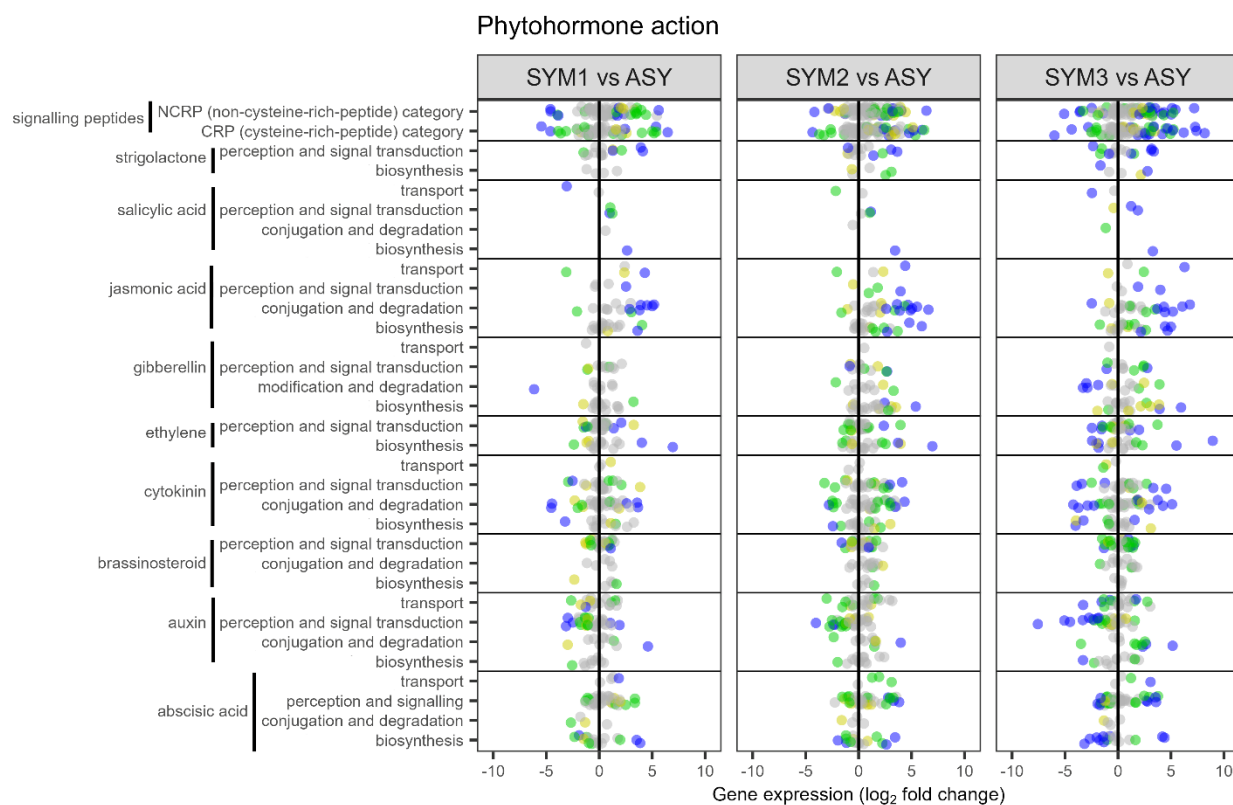


Figure S8. Phytohormone pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

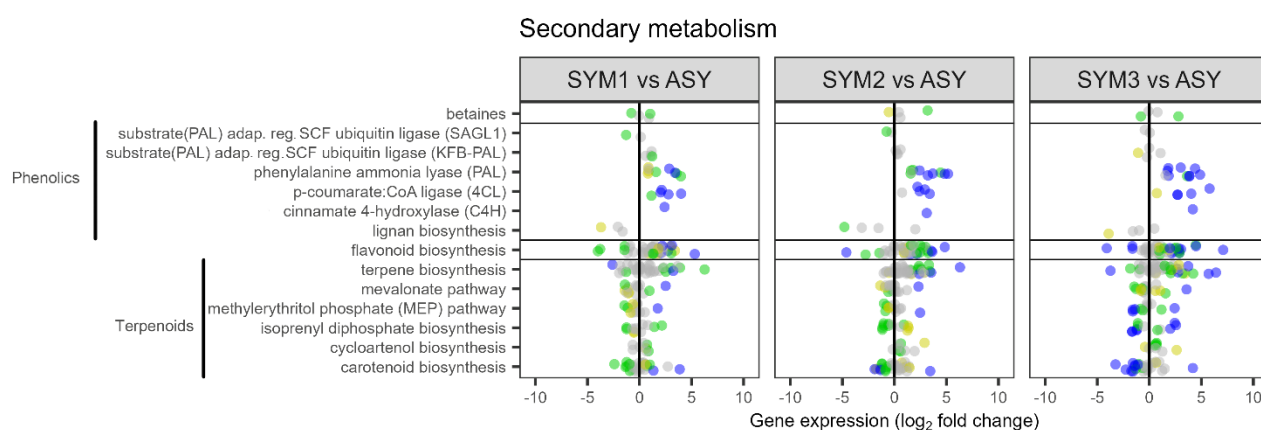


Figure S9. Secondary metabolism annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

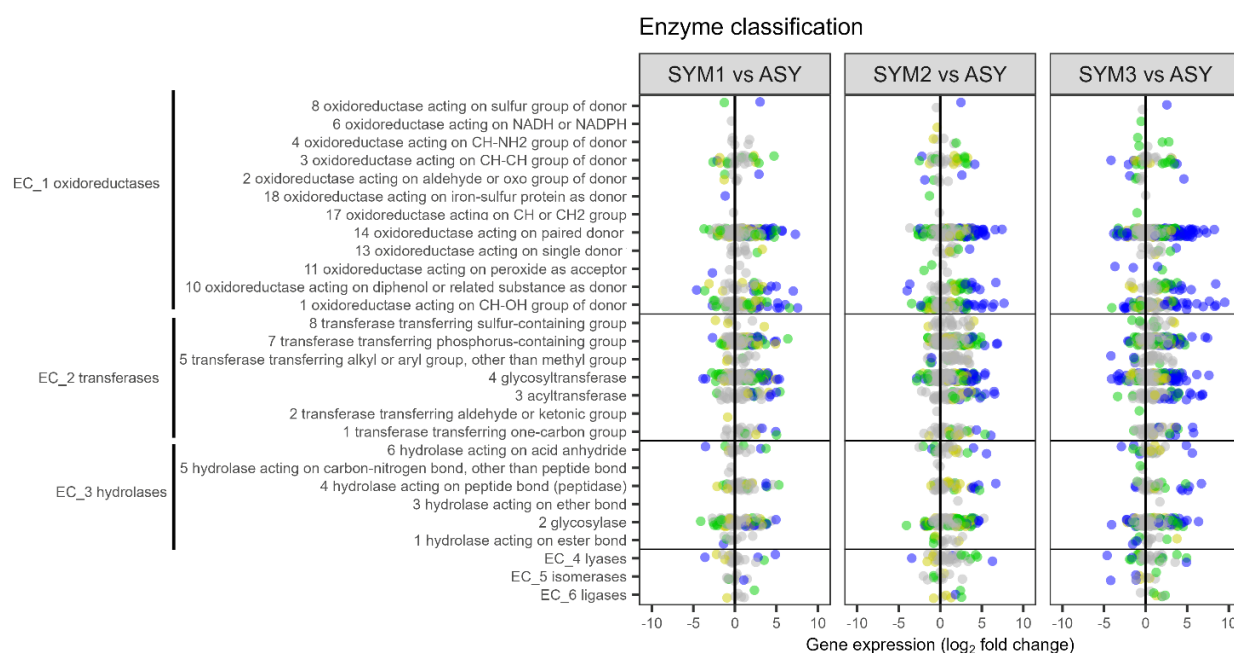


Figure S10. Enzyme annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

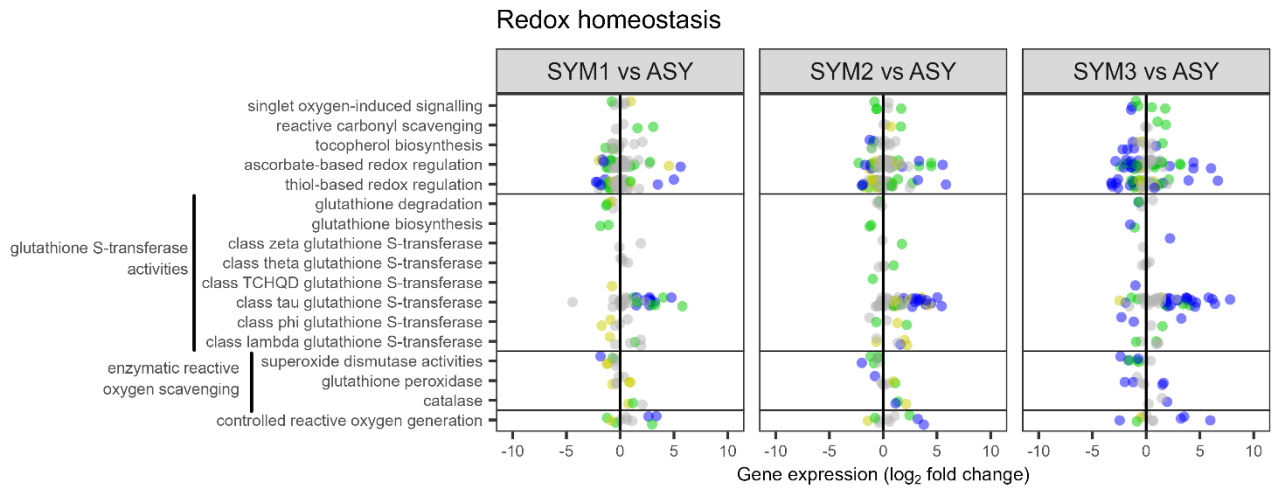


Figure S11. Redox homeostasis pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

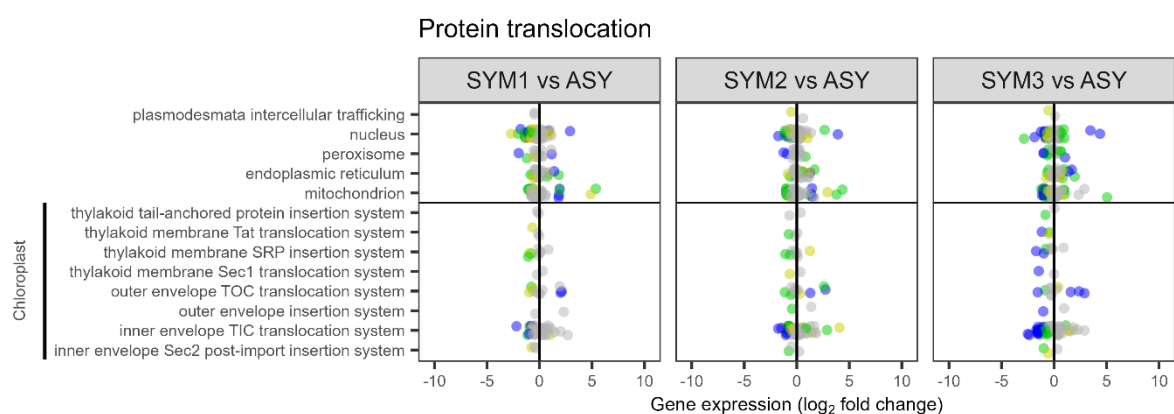


Figure S12. Protein translocation pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

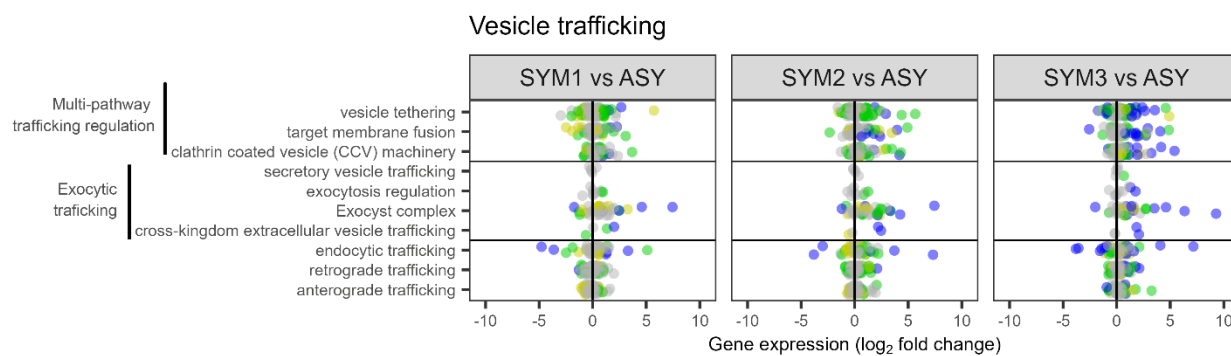


Figure S13. Vesicle trafficking pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

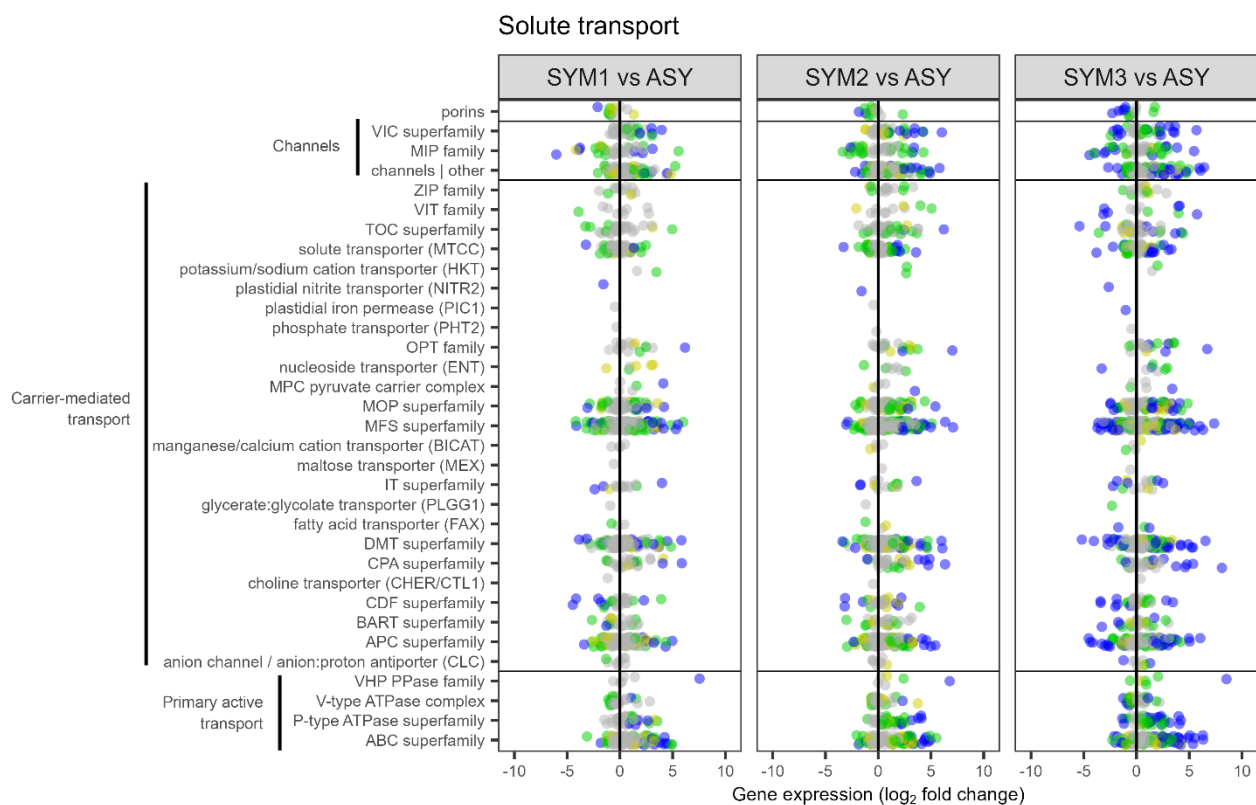


Figure S14. Solute transport pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

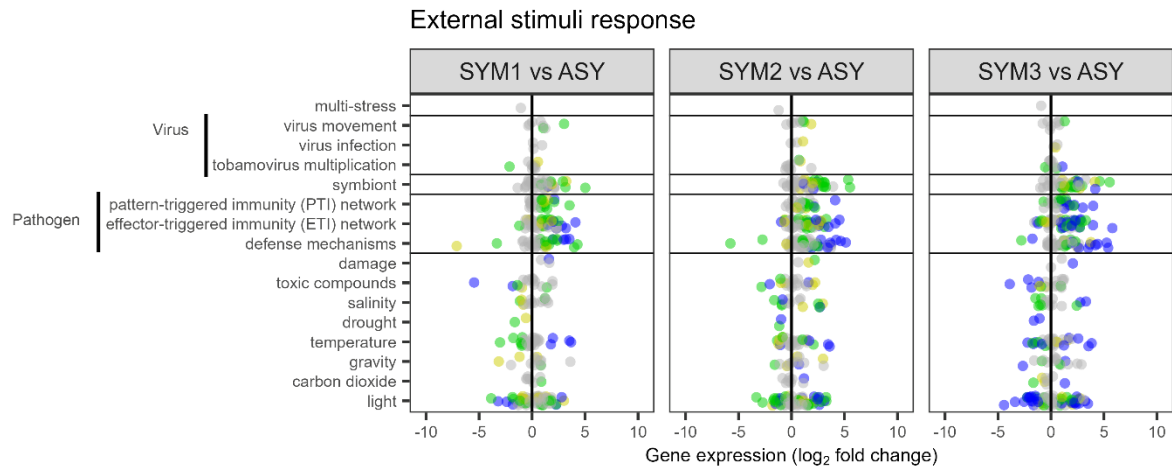


Figure S15. External stimuli response pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

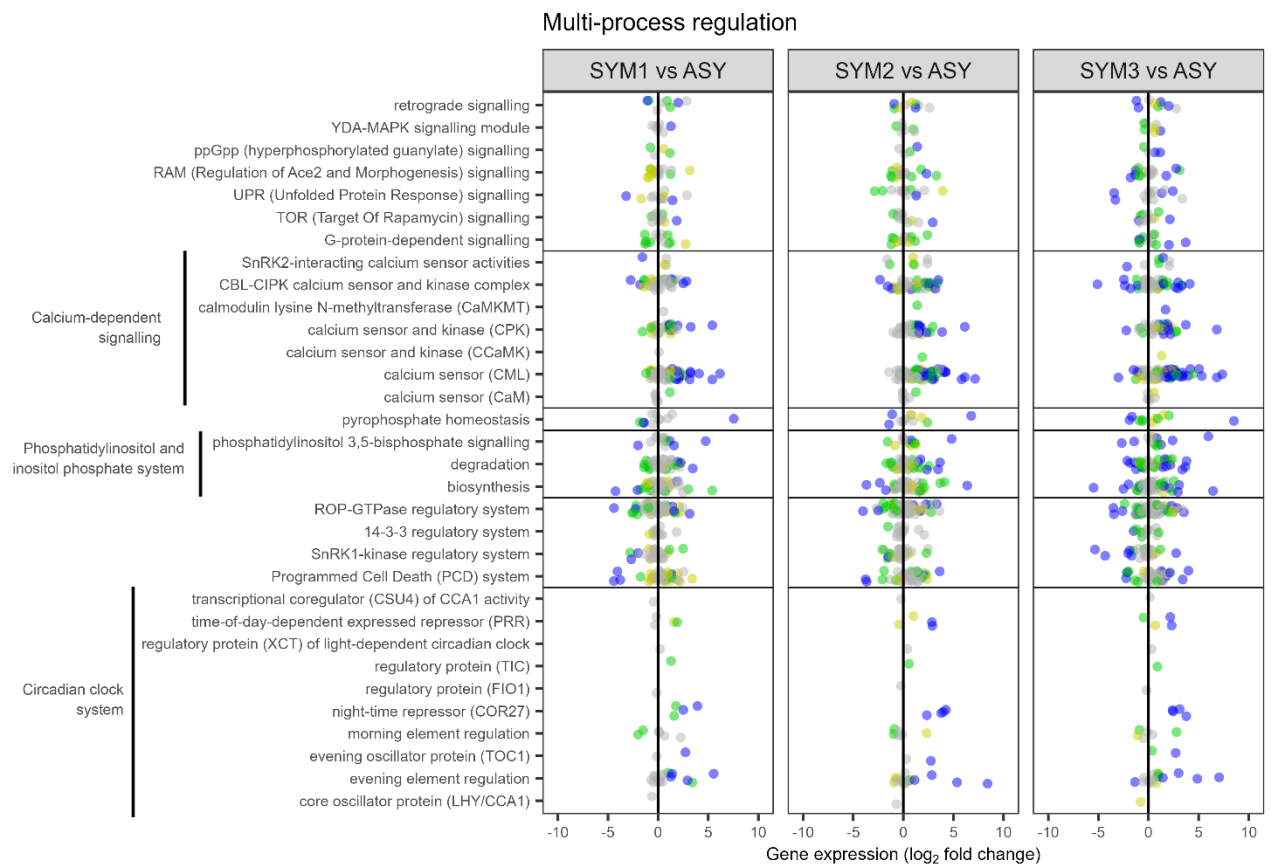


Figure S16. Multi-process regulation pathway annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

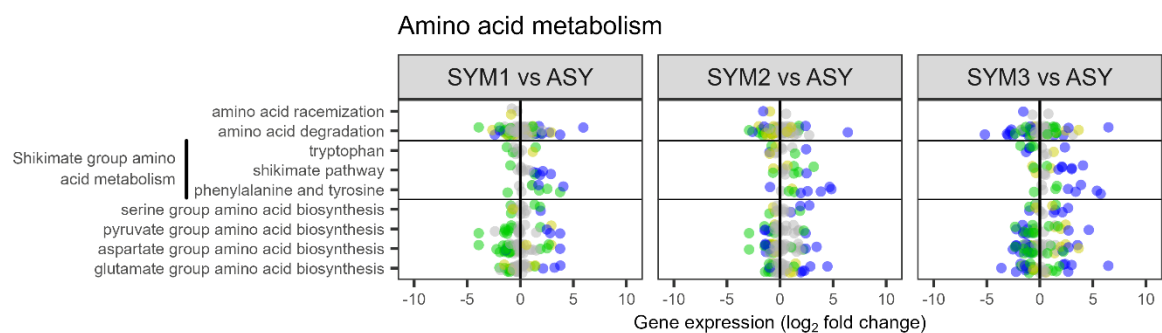


Figure S17. Amino acid metabolism annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

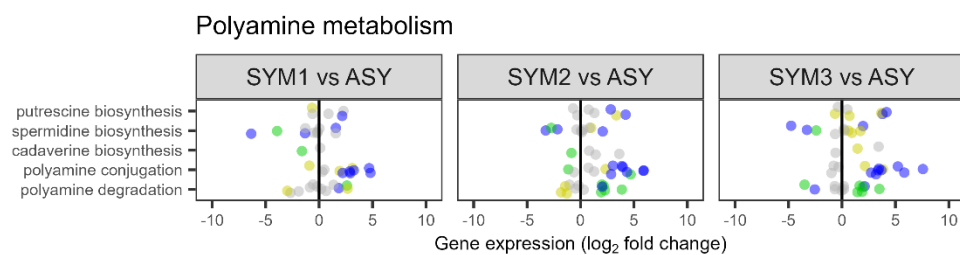


Figure S18. Polyamine metabolism annotation (MapMan) of genes differentially expressed in tomato plants as revealed by RNA-Seq. Plant groups ASY, SYM1, SYM2, and SYM3 differed for the titer of tomato spotted wilt virus as depicted in Figure 1.

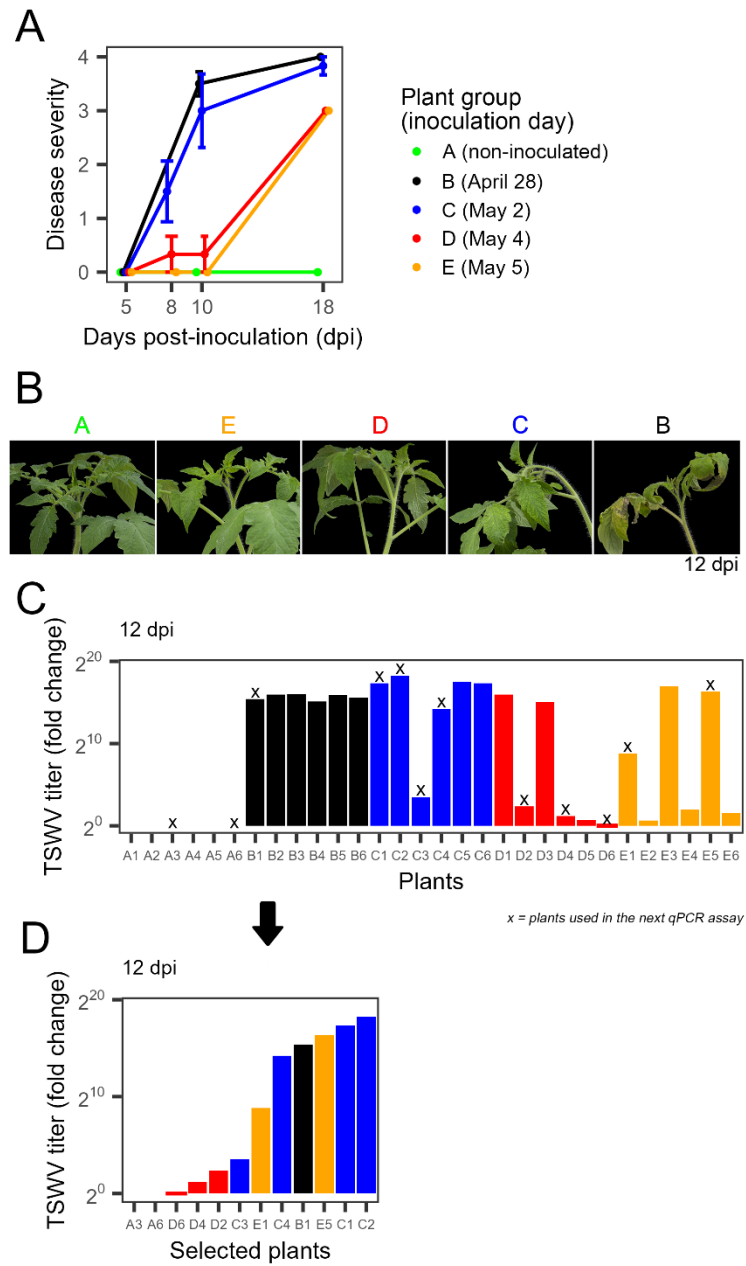


Figure S19. Greenhouse experiment: progress over time of tomato spotted wilt virus (TSWV) symptom severity (A) in different plant groups artificially inoculated at different time points; symptoms of TSWV at two dates in different plant groups (B); virus titer measured by qPCR on May 10 in all the plants (C) and only those selected to have a wide virus titer range for the following qPCR assay (D).