



AmplifyRP® XRT for *Begomovirus* spp.
Validation Report
Begomovirus spp.
Product No. XCS 99100



Test Characteristics

Test Name	Begomovirus spp.	Test Label	FAM-labeled target probe
Catalog Number	99100	Internal Control	N/A
Acronym	Begomovirus spp.	Format	XRT
Genus	Begomovirus	Diluents	GEB2/PD1
		Sample Dilution	1:20

Summary

AmplifyRP® XRT for Begomovirus spp. is a rapid DNA amplification and detection platform designed for field-based or laboratory testing of many crops including cucurbits, ornamentals, pepper, potato, sweet potato, and tomato (see validation report for full list) for Begomoviruses. This kit includes lyophilized reaction pellets containing the necessary reagents to amplify Begomovirus spp. DNA at a single operating temperature (42 °C).

Diagnostic Sensitivity

True Positives	173
Correct Diagnoses	169
Percent	97.7%

Analytical Sensitivity: Varies depending on which viral species is present in the sample. Below are several examples of analytical sensitivity tested during product validation. These examples were chosen to represent species with a range of homology to the primers and probes used in this assay.

TYLCV	Analytical Sensitivity:	The assay is 86.4% sensitive between 1 fg/μL and 100 ag/μL. (n=22)
	Limit of Detection:	The assay has a 100% detection rate at 1 fg/μL with DNA fragments. (n=11)
		The assay has a 72.7% detection rate at 100 ag/μL with DNA fragments. (n=11)
ToLCNDV	Analytical Sensitivity:	The assay is 72.2% sensitive between 100 fg/μL and 10 fg/μL. (n=18)
	Limit of Detection:	The assay has a 100% detection rate at 100 fg/μL with DNA fragments. (n=9)
		The assay has a 44.4% detection rate at 10 fg/μL with DNA fragments. (n=9)
SLCV	Analytical Sensitivity:	The assay is 66.7% sensitive between 100 fg/μL and 10 fg/μL. (n=18)
	Limit of Detection:	The assay has a 100% detection rate at 100 fg/μL with DNA fragments. (n=9)
		The assay has a 33.3% detection rate at 10 fg/μL with DNA fragments. (n=9)
BGYMV	Analytical Sensitivity:	The assay is 61.1% sensitive between 1 pg/μL and 100 fg/μL. (n=18)
	Limit of Detection:	The assay has a 100% detection rate at 1 pg/μL with DNA fragments. (n=9)
		The assay has a 22.2% detection rate at 100 fg/μL with DNA fragments. (n=9)

Analytical Specificity

Inclusivity:

Begomoviruses Detected:

Virus Name	Species Name
Abutilon golden mosaic virus (AbGMV) ¹	Begomovirus abutilonis
Abutilon mosaic Bolivia virus (AbMBoV) ¹	Begomovirus jeskei
Abutilon mosaic Brazil virus (AbMBV) ¹	Begomovirus abutilonbrazilense
Abutilon mosaic virus (AbMV) ¹	Begomovirus bauri

Begomoviruses Detected:

Virus Name	Species Name
African cassava mosaic Burkina Faso virus (ACMBFV) ¹	Begomovirus manihotisburkinafasoense
African cassava mosaic virus (ACMV)	Begomovirus manihotis
Ageratum enation virus (AEV) ¹	Begomovirus agerati
Ageratum leaf curl Sichuan virus (ALCScV) ¹	Begomovirus agerasichuanense
Ageratum leaf curl virus (ALCuV) ¹	Begomovirus agerainvolutionis
Ageratum yellow vein Hualian virus (AYVHV) ¹	Begomovirus agerahualianense
Ageratum yellow vein Sri Lanka virus (AYVSLV) ¹	Begomovirus agerasrilankaense
Ageratum yellow vein virus (AVYV) ¹	Begomovirus ageravenae
Allamanda leaf curl virus (AILLCV) ¹	Begomovirus allamandae
Allamanda leaf mottle distortion virus (AILMoDV) ¹	Begomovirus catharticae
Alternanthera yellow vein virus (AIYVV) ¹	Begomovirus alternantherae
Andrographis yellow vein leaf curl virus (AnYVLCV) ¹	Begomovirus andrographis
Asystasia mosaic Madagascar virus (AsMMV) ¹	Begomovirus asystasiae
Bean bushy stunt virus (BSV) ¹	Begomovirus phaseoliretorridi
Bean calico mosaic virus (BChV) ¹	Begomovirus phaseolicaliconis
Bean golden mosaic virus (BGMV)	Begomovirus costai
Bean golden yellow mosaic virus (BGMV)	Begomovirus birdi
Bean latent virus (BLV) ¹	Begomovirus phaseolilatens
Bean leaf crumple virus (BLCrV) ¹	Begomovirus phaseoli
Bean yellow mosaic Mexico virus (BYMMxV) ¹	Begomovirus phaseolimexicoense
Bhendi yellow vein Bhubhaneswar virus (BYVBhV) ¹	Begomovirus abelmoschusbhubhaneswarensis
Bhendi yellow vein Delhi virus (BYVMDV) ¹	Begomovirus abelmoschusdehliensis
Bhendi yellow vein Haryana virus (BYVHV) ¹	Begomovirus abelmoschusharyanaensis
Bhendi yellow vein mosaic virus (BYVMV) ¹	Begomovirus abelmoschusflavi
Bitter melon yellow mosaic virus (BgYMV) ¹	Begomovirus momordicae
Blainvillea yellow spot virus (BIYSV) ¹	Begomovirus blainvilleae
Blechum interveinal chlorosis virus (BleICV) ¹	Begomovirus blechi
Blechum yellow vein virus (BleYVV) ¹	Begomovirus blechumflavi
Boerhavia yellow spot virus (BoYSV) ¹	Begomovirus boerhaviae
Cabbage leaf curl Jamaica virus (CabLCJV) ¹	Begomovirus brassicajamaicaensis
Cabbage leaf curl virus (CabLCV) ¹	Begomovirus brassicae
Capraria yellow spot Yucatan virus (CarYSV) ¹	Begomovirus caprariae
Cassava mosaic Madagascar virus (CMMGV) ¹	Begomovirus manihotismadagascarensis
Catharanthus yellow mosaic virus (CaYMV) ¹	Begomovirus catharanthi
Centrosema yellow spot virus (CeYSV) ¹	Begomovirus centrosemae
Chayote yellow mosaic virus (ChaYMV) ¹	Begomovirus chayotis
Chenopodium leaf curl virus (ChLCV) ¹	Begomovirus chenopodii
Chilli leaf curl Ahmedabad virus (ChiLCAV) ¹	Begomovirus capsiahmedabadensis
Chilli leaf curl Bhavanisagar virus (ChiLCBV)	Begomovirus capsibhavanisagarensis
Chilli leaf curl Gonda virus (ChiLCGV) ¹	Begomovirus capsigondaensis
Chilli leaf curl India virus (ChiLCINV) ¹	Begomovirus capsindiaensis
Chilli leaf curl Kanpur virus (ChiLCKaV) ¹	Begomovirus capsikanpurensis
Chilli leaf curl Sri Lanka virus (ChiLCSLV) ¹	Begomovirus capsisrilankaensis
Chilli leaf curl Vellanad virus (ChiLCVV) ¹	Begomovirus capsivellanadensis

Begomoviruses Detected:

Virus Name	Species Name
Chilli leaf curl virus (ChiLCV) ¹	Begomovirus chillicapsici
Chino del tomate Amazonas virus (CdTAV) ¹	Begomovirus solanumamazonasense
Chino del tomate virus (CdTV)	Begomovirus solanumflavi
Cleome golden mosaic virus (CleGMV) ¹	Begomovirus cleomaurei
Cleome leaf crumple virus (CleLCrV) ¹	Begomovirus cleomecrispi
Clerodendron golden mosaic virus (CIGMV) ¹	Begomovirus clerodendronis
Clerodendron yellow mosaic virus (CIYMV) ¹	Begomovirus clerodendronflavi
Clerodendrum golden mosaic China virus (CIGMCNV) ¹	Begomovirus clerodendrumchinaense
Clerodendrum golden mosaic Jiangsu virus (CIGMJsv) ¹	Begomovirus clerodendrumjiangsuense
Cnidoscolus mosaic leaf deformation virus (CnMLDV) ¹	Begomovirus cnidoscoli
Coccinia mosaic Tamil Nadu virus (CMTNV) ¹	Begomovirus coccinae
Common bean mottle virus (CBMoV) ¹	Begomovirus phaseovulgaris
Common bean severe mosaic virus (CBSMV) ¹	Begomovirus vulgaris
Corchorus golden mosaic virus (CoGMV) ¹	Begomovirus corchori
Corchorus yellow spot virus (CoYSV) ¹	Begomovirus corchoflavi
Corchorus yellow vein Cuba virus (CoYVCUV) ¹	Begomovirus corchocubaense
Corchorus yellow vein mosaic virus (CoYV) ¹	Begomovirus corchomusivi
Corchorus yellow vein virus (CoYVV) ¹	Begomovirus corchovenae
Cotton chlorotic spot virus (CoChSpV) ¹	Begomovirus gossypimaculae
Cotton leaf crumple virus (CLCrV)	Begomovirus gossypii
Cotton leaf curl Alabad virus (CLCuAIV) ¹	Begomovirus gossypialabadense
Cotton leaf curl Bangalore virus (CLCuBaV) ¹	Begomovirus gossypibangaloreense
Cotton leaf curl Barasat virus (CLCuBarV) ¹	Begomovirus gossypibarasatense
Cotton leaf curl Gezira virus (CLCuGeV) ¹	Begomovirus gossypigeziraense
Cotton leaf curl Kokhran virus (CLCuKoV) ¹	Begomovirus gossypikokranense
Cotton leaf curl Multan virus (CLCuMuV) ¹	Begomovirus gossypimultanense
Cotton leaf curl Multan virus (CLCuMuV) ¹	Begomovirus gossypimultanense
Cotton yellow mosaic virus (CYMV) ¹	Begomovirus gossypiflavi
Cowpea bright yellow mosaic virus (CoBYMV) ¹	Begomovirus vignaflavi
Cowpea golden mosaic virus (CPGMV) ¹	Begomovirus vignamusivi
Crassocephalum yellow vein virus (CraYVV) ¹	Begomovirus crassocephali
Croton golden mosaic virus (CroGMV) ¹	Begomovirus crotomusivi
Croton yellow vein mosaic virus (CroYVMV) ¹	Begomovirus crotoflavi
Cucurbit leaf crumple virus (CuLCrV)	Begomovirus cucurbitae
Dalechampia chlorotic mosaic virus (DaChMV) ¹	Begomovirus dalechampiae
Datura leaf curl virus (DaLCV) ¹	Begomovirus daturae
Datura leaf distortion virus (DaLDV) ¹	Begomovirus daturadistortionis
Deinbollia mosaic virus (DMV) ¹	Begomovirus deinbolliae
Desmodium leaf distortion virus (DesLDV) ¹	Begomovirus desmodistortionis
Desmodium mottle virus (DesMoV) ¹	Begomovirus desmodii
Dicliptera yellow mottle virus (DiYMoV) ¹	Begomovirus diclipterae
Dolichos yellow mosaic virus (DoYMV) ¹	Begomovirus dolichoris
Duranta leaf curl virus (DuLCV) ¹	Begomovirus durantae
East African cassava mosaic Cameroon virus (EACMCMV) ¹	Begomovirus manihotiscameroonense

Begomoviruses Detected:

Virus Name	Species Name
East African cassava mosaic Kenya virus (EACMKV) ¹	Begomovirus manihotiskenyaense
East African cassava mosaic Malawi virus (EACMMV) ¹	Begomovirus manihotismalawiense
East African cassava mosaic virus (EACMV) ¹	Begomovirus manihotisafricaense
East African cassava mosaic Zanzibar virus (EACMZV) ¹	Begomovirus manihotiszanzibareense
Eclipta yellow vein virus (EYVV) ¹	Begomovirus ecliptae
Emilia sonchifolia yellow vein Thailand virus (EYVTHV) ¹	Begomovirus emiliathailandense
Emilia yellow vein Fujian virus (EYVFjV)	Begomovirus emiliafujianense
Emilia yellow vein virus (EYVV) ¹	Begomovirus emiliae
Erectites yellow mosaic virus (ErYMV) ¹	Begomovirus erectitesis
Eupatorium yellow vein mosaic virus (EpYVV) ¹	Begomovirus eupatorii
Eupatorium yellow vein virus (EpYVMV) ¹	Begomovirus kokenae
Euphorbia leaf curl Guangxi virus (EuLCGxV) ¹	Begomovirus euphorbiaguangxiense
Euphorbia leaf curl virus (EuLCuV) ¹	Begomovirus euphorbiae
Euphorbia mosaic Peru virus (EuMPV) ¹	Begomovirus euphorbiaperuense
Euphorbia mosaic virus (EuMV) ¹	Begomovirus euphorbiamusivi
Euphorbia yellow leaf curl virus (EuYLCV) ¹	Begomovirus euphorbiaflavi
Euphorbia yellow mosaic virus (EuYMV) ¹	Begomovirus euphorbiamusiviflavi
French bean leaf curl virus (FbLCV) ¹	Begomovirus phaseoligallici
Hedyotis uncinella yellow mosaic virus (HeuYMV) ¹	Begomovirus hedyotis
Hemidesmus yellow mosaic virus (HemYMV) ¹	Begomovirus hemidesmi
Hibiscus golden mosaic virus (HGMV) ¹	Begomovirus hibisci
Hollyhock leaf curl virus (HoLCV) ¹	Begomovirus alceae
Hollyhock yellow vein mosaic virus (HoYVMV) ¹	Begomovirus alceamuvisi
Hollyhock yellow vein virus (HoYVV) ¹	Begomovirus alceavenae
Honeysuckle yellow vein mosaic virus (ToLCJV) ¹	Begomovirus solanumjapanense
Honeysuckle yellow vein virus (HYVV) ¹	Begomovirus macrotylomae
Horsegram yellow mosaic virus (HgYMV) ¹	Begomovirus loniceramusivi
Indian cassava mosaic virus (ICMV) ¹	Begomovirus manihotisindianense
Jacquemontia yellow vein virus (JacYVV) ¹	Begomovirus jacquemontiaenae
Jatropha leaf curl Gujarat virus (JLCGV) ¹	Begomovirus jatrophagujaratense
Jatropha leaf curl virus (JLCuV) ¹	Begomovirus jatrophae
Jatropha leaf yellow mosaic virus (JLYMV) ¹	Begomovirus jatrophaflavi
Jatropha mosaic India virus (JMINV) ¹	Begomovirus jatrophaindiaense
Jatropha mosaic Nigeria virus (JMNv) ¹	Begomovirus jatrophanigeriaense
Jatropha mosaic virus (JMV) ¹	Begomovirus jatrophamusivi
Jatropha yellow mosaic virus (JYMV) ¹	Begomovirus jatrophaflavamusivi
Kudzu mosaic virus (KuMV) ¹	Begomovirus puerariae
Leonurus mosaic virus (LeMV) ¹	Begomovirus leonuri
Lindernia anagallis yellow vein virus (LaYVV) ¹	Begomovirus linderniae
Lisianthus enation leaf curl virus (LELCV) ¹	Begomovirus lisianthi
Ludwigia yellow vein Vietnam virus (LuYVVNV) ¹	Begomovirus ludwigiavietnamense
Ludwigia yellow vein virus (LuYVV) ¹	Begomovirus ludwigiae
Luffa yellow mosaic virus (LYMV) ¹	Begomovirus luffae
Lycianthes yellow mosaic virus (LyYMV) ¹	Begomovirus lycianthesis

Begomoviruses Detected:

Virus Name	Species Name
Macrotidium bright mosaic virus (MacBMV) ¹	Begomovirus macrotidimusivi
Macrotidium common mosaic virus (MacCMV) ¹	Begomovirus macrotilicommunis
Macrotidium golden mosaic virus (MacGMV) ¹	Begomovirus macrotilaurei
Macrotidium mosaic Puerto Rico virus (MacMPRV) ¹	Begomovirus macrotilipuertoricoense
Macrotidium yellow mosaic Florida virus (MacYMFV) ¹	Begomovirus macrotilifloridaense
Macrotidium yellow mosaic virus (MacYMV) ¹	Begomovirus macrotilii
Macrotidium yellow vein virus (MacYVV) ¹	Begomovirus macrotilivenae
Malvastrum bright yellow mosaic virus (MaBYMV) ¹	Begomovirus malvastrumflavi
Malvastrum leaf curl Philippines virus (MaLCPHV) ¹	Begomovirus malvastrumphilipinesense
Malvastrum leaf curl virus (MaLCuV) ¹	Begomovirus malvastrumflavi
Malvastrum yellow mosaic Helshire virus (MaYMHV) ¹	Begomovirus malvastrumhelshireense
Malvastrum yellow mosaic Jamaica virus (MaYMJV) ¹	Begomovirus malvastrumjamaicaense
Malvastrum yellow mosaic virus (MaYMV) ¹	Begomovirus malvastrummusivi
Malvastrum yellow vein Cambodia virus (MaYVCV) ¹	Begomovirus malvastrumcambodiaense
Malvastrum yellow vein Honghe virus (MaYVHV) ¹	Begomovirus malvastrumhonghense
Malvastrum yellow vein Lahore virus (MaYVLHV) ¹	Begomovirus malvastrumlahoreense
Malvastrum yellow vein virus (MaYVV) ¹	Begomovirus malvastrumvenae
Malvastrum yellow vein Yunnan virus (MaYVYnV) ¹	Begomovirus malvastrumyunnanense
Melochia mosaic virus (MeIMV) ¹	Begomovirus melochiae
Melochia yellow mosaic virus (MeYMV) ¹	Begomovirus melochiaflavi
Melon chlorotic leaf curl virus (MCLCuV)	Begomovirus chlorocucumis
Melon chlorotic mosaic virus (MCIMV) ¹	Begomovirus cucumismusivi
Melon yellow mosaic virus (MeYMV) ¹	Begomovirus cucumisflavi
Merremia mosaic Puerto Rico virus (MerMPRV) ¹	Begomovirus merremiapuertoricoense
Merremia mosaic virus (MerMV) ¹	Begomovirus merremiae
Mesta yellow vein mosaic Bahraich virus (MeYVMBaV) ¹	Begomovirus mestae
Mimosa yellow leaf curl virus (MiYLCV) ¹	Begomovirus mimosae
Mirabilis leaf curl virus (MirLCV) ¹	Begomovirus mirabilis
Mungbean yellow mosaic India virus (MYMIV) ¹	Begomovirus vignaradiataindiaense
Mungbean yellow mosaic virus (MYMV) ¹	Begomovirus vignaradiatae
Ocimum golden mosaic virus (OcGMV) ¹	Begomovirus ocimumaurei
Ocimum mosaic virus (OcMV)	Begomovirus ocimummusivi
Ocimum yellow vein virus (OcYVV) ¹	Begomovirus ocimumvenae
Okra enation leaf curl virus (OELCuV) ¹	Begomovirus abelsmoschusenation
Okra leaf curl Oman virus (OLCOV) ¹	Begomovirus abelsmoschusomanense
Okra mottle virus (OMoV) ¹	Begomovirus abelsmoschusmaculae
Okra yellow crinkle virus (OYCrV) ¹	Begomovirus abelsmoschusretorridi
Okra yellow mosaic Mexico virus (OYMV) ¹	Begomovirus abelsmoschusmexicoense
Oxalis yellow vein virus (OxYVV) ¹	Begomovirus oxalisflavi
Papaya leaf crumple virus (PaLCrV) ¹	Begomovirus papayae
Papaya leaf curl China virus (PaLCuCNV) ¹	Begomovirus caricachinaense
Papaya leaf curl Guandong virus (PaLCuGdV) ¹	Begomovirus caricaguandongense
Papaya leaf curl virus (PaLCuV) ¹	Begomovirus caricae
Papaya severe leaf curl virus 1 (PaSLCV1) ¹	Begomovirus caricaprimi

Begomoviruses Detected:

Virus Name	Species Name
Papaya severe leaf curl virus 2 (PaSLCV2) ¹	Begomovirus caricasecondi
Papaya yellow leaf curl virus (PaYLCV) ¹	Begomovirus caricaflavi
Passionfruit severe leaf distortion virus (PSLDV) ¹	Begomovirus passifloraseveri
Pavonia mosaic virus (PavMV) ¹	Begomovirus pavoniae
Pavonia yellow mosaic virus (PavYMV) ¹	Begomovirus pavoniaflavi
Pea leaf distortion virus (PeLDV) ¹	Begomovirus pisi
Pedilanthus leaf curl virus (PeLCV) ¹	Begomovirus pedilanthi
Pepper blistering leaf virus (PepBLV) ¹	Begomovirus capsicumannui
Pepper golden mosaic virus (PepGMV) ¹	Begomovirus capsicummusivi
Pepper huasteco yellow vein virus (PHYVV)	Begomovirus capsicumhuastecoense
Pepper leaf curl Bangladesh virus (PepLCBV) ¹	Begomovirus capsicumbangladeschense
Pepper leaf curl Lahore virus (PepLCLaV) ¹	Begomovirus capsicumlahoreense
Pepper leaf curl virus (PepLCV) ¹	Begomovirus capsici
Pepper leaf curl Yunnan virus (PepLCYnV) ¹	Begomovirus capsicumyunnanense
Pepper leafroll virus (PepLRV) ¹	Begomovirus capsicumcontorsioris
Pepper yellow leaf curl Aceh virus (PepYLCAV) ¹	Begomovirus capsicumacehense
Pepper yellow leaf curl Indonesia virus (PepYLCIV) ¹	Begomovirus capsicumindonesiaense
Pepper yellow leaf curl Indonesia virus 2 (PepYLCV2) ¹	Begomovirus capsicumindonesiaenseduo
Pepper yellow leaf curl Thailand virus (PepYLCTHV) ¹	Begomovirus capsicumthailandense
Pepper yellow leaf curl virus (PepYLCV) ¹	Begomovirus capsicumchinaense
Pepper yellow leaf curl virus (PepYLCV2) ¹	Begomovirus capsicumindonesiaenseduo
Pepper yellow vein Mali virus (PepYVMLV) ¹	Begomovirus capsicummaliense
Potato yellow mosaic Panama virus (PYMPV) ¹	Begomovirus tuberosumpanamaense
Potato yellow mosaic virus (PYMV) ¹	Begomovirus tuberosi
Pouzolzia golden mosaic virus (PouGMV) ¹	Begomovirus pouzolziae
Pouzolzia mosaic Guangdong virus (PouMGDV) ¹	Begomovirus pouzolziaguangdongense
Premna leaf curl virus (PreLCV) ¹	Begomovirus premnae
Pumpkin yellow mosaic virus (PuYMV) ¹	Begomovirus cucurbitamaximae
Ramie mosaic Yunnan virus (RMYNV) ¹	Begomovirus ramiis
Rhynchosia golden mosaic Havana virus (RhGMHaV) ¹	Begomovirus rhynchosiahavanaense
Rhynchosia golden mosaic Sinaloa virus (CabLCV) ¹	Begomovirus rhynchosiasinaloaense
Rhynchosia golden mosaic virus (RhGMV) ¹	Begomovirus rhynchosiaurei
Rhynchosia mild mosaic virus (RhMMV) ¹	Begomovirus rhynchosiae
Rhynchosia rugose golden mosaic virus (RhRGMV) ¹	Begomovirus rhynchosiarugosi
Rhynchosia yellow mosaic India virus (RhYMIV) ¹	Begomovirus rhynchosiaindiaense
Rhynchosia yellow mosaic virus (RhYMV) ¹	Begomovirus rhynchosiaflavi
Rose leaf curl virus (RoLCuV) ¹	Begomovirus rosae
Sauropus leaf curl virus (SauLCuV) ¹	Begomovirus sauropi
Senecio yellow mosaic virus (SeYMV) ¹	Begomovirus senecionis
Senna leaf curl virus (SenLCuV) ¹	Begomovirus sennae
Sida angular mosaic virus (SiAMV) ¹	Begomovirus sidamusivi
Sida bright yellow mosaic virus (SiBYMV) ¹	Begomovirus sidaflavi
Sida chlorotic mottle virus (SiCMoV) ¹	Begomovirus sidapallivariati
Sida chlorotic vein virus (SiCVV) ¹	Begomovirus sidavenae

Begomoviruses Detected:

Virus Name	Species Name
Sida ciliaris golden mosaic virus (SicGMV) ¹	Begomovirus sidaciliaris
Sida common mosaic virus (SiCMV) ¹	Begomovirus sidavulgaris
Sida golden mosaic Braco virus (SiGMBcV) ¹	Begomovirus sidaureibracoense
Sida golden mosaic Brazil virus (SiGMBRV) ¹	Begomovirus sidaureibrazilense
Sida golden mosaic Backup virus (SiGMBuV) ¹	Begomovirus sidaureibuckupense
Sida golden mosaic Costa Rica virus (SiGMCRV) ¹	Begomovirus sidaureicostaricaense
Sida golden mosaic Florida virus (SiGMFIV) ¹	Begomovirus sidaureifloridaense
Sida golden mosaic Lara virus (SiGMLaV) ¹	Begomovirus sidaureilaraense
Sida golden mosaic virus (SiGMV) ¹	Begomovirus sidaureidis
Sida golden mottle virus (SiGMoV) ¹	Begomovirus sidaureivariati
Sida golden yellow vein virus (SiGYVV) ¹	Begomovirus sidaureivenae
Sida golden yellow vein virus (SiGYVV) ¹	Begomovirus sidaureivenae
Sida interveinal bright yellow virus (SiIBYV) ¹	Begomovirus sidaintervenae
Sida leaf curl virus (SiLCuV) ¹	Begomovirus sidacontorsionis
Sida micrantha mosaic virus (SiMMV) ¹	Begomovirus sidamicranthae
Sida mosaic Bolivia virus 1 (SiMBoV1) ¹	Begomovirus sidaboliviaenseprimi
Sida mosaic Bolivia virus 2 (SiMBoV2) ¹	Begomovirus sidaboliviaensesecundi
Sida mosaic Sinaloa virus (SiMSiV) ¹	Begomovirus sidasinaloaense
Sida mottle Alagoas virus (SiMoAV) ¹	Begomovirus sidavariatialagoense
Sida mottle virus (SiMoV) ¹	Begomovirus sidavariati
Sida yellow golden mosaic virus (SiYGMV) ¹	Begomovirus sidaflavaureimusivi
Sida yellow leaf curl virus (SiYLCV) ¹	Begomovirus sidaflavacontorsionis
Sida yellow mosaic Alagoas virus (SiYMAV) ¹	Begomovirus sidaflavalagoense
Sida yellow mosaic China virus (SiYMCNV) ¹	Begomovirus sidaflavachinaense
Sida yellow mosaic virus (SiYMV) ¹	Begomovirus sidaflavamusivi
Sida yellow mosaic Yucatan virus (SiYMYuV) ¹	Begomovirus sidaflavayucatanense
Sida yellow mottle virus (SiYMoV) ¹	Begomovirus sidaflavavariati
Sida yellow net virus (SiYNV) ¹	Begomovirus sidaflavaneti
Sida yellow vein Vietnam virus (SiYVVV) ¹	Begomovirus sidaflavavietnamense
Sida yellow vein virus (SiYVV) ¹	Begomovirus sidaflavavenae
Sidastrum golden leaf spot virus (SidGLSV) ¹	Begomovirus sidastris
Siegesbeckia yellow vein Guangxi virus (SgYVGxV) ¹	Begomovirus siegesbeckiaguangxiense
Siegesbeckia yellow vein virus (SgYVV) ¹	Begomovirus siegesbeckiae
Solanum mosaic Bolivia virus (SoMBoV) ¹	Begomovirus solanumboliviense
South African cassava mosaic virus (SACMV) ¹	Begomovirus warburgi
Soybean blistering mosaic virus (SbBMV) ¹	Begomovirus glycinis
Soybean chlorotic blotch virus (SbCBV) ¹	Begomovirus glycinepallidi
Soybean mild mottle virus (SbMMoV) ¹	Begomovirus glycinevariati
Spilanthus yellow vein virus (SpYVV) ¹	Begomovirus spilanthis
Squash leaf curl China virus (SLCCNV)	Begomovirus cucurbitachinaense
Squash leaf curl Philippines virus (SLCuPV)	Begomovirus cucurbitaphilippinense
Squash leaf curl virus (SLCuV)	Begomovirus cucurbitapeponis
Squash leaf curl Yunnan virus (SLCuYV) ¹	Begomovirus cucurbitayunnanense
Squash mild leaf curl virus (SMLCuV) ¹	Begomovirus cucurbitatenuis

Begomoviruses Detected:

Virus Name	Species Name
Squash yellow mild mottle virus (MCLCuV) ¹	Begomovirus chlorocucumis
Sri Lankan cassava mosaic virus (SLCMV) ¹	Begomovirus stanleyi
Stachytarpheta leaf curl virus (StaLCuV) ¹	Begomovirus stachytarphetae
Sunn hemp leaf distortion virus (SHLDV) ¹	Begomovirus crotalariae
Sweet potato golden vein Korea virus (SPGVKRV) ¹	Begomovirus ipomoeakoreaense
Sweet potato leaf curl Canary virus (SPLCCV) ¹	Begomovirus ipomoeacanaryense
Sweet potato leaf curl China virus (SPLCCNV) ¹	Begomovirus ipomoeachinaense
Sweet potato leaf curl Georgia virus (SPLCGV) ¹	Begomovirus ipomoeageorgiaense
Sweet potato leaf curl Guangxi virus (SPLCGV) ¹	Begomovirus ipomoeaguangxiense
Sweet potato leaf curl Henan virus (SPLCHnV) ¹	Begomovirus ipomoeahenanense
Sweet potato leaf curl Hubei virus (SPLCHbV) ¹	Begomovirus ipomoeahubeiense
Sweet potato leaf curl Sao Paulo virus (SPLCSPV) ¹	Begomovirus ipomoeasaopauloense
Sweet potato leaf curl Sichuan virus 1 (SPLCSiV/1) ¹	Begomovirus ipomoeasichuanprimi
Sweet potato leaf curl Sichuan virus 2 (SPLCSiV/2) ¹	Begomovirus ipomoeasichuansecundi
Sweet potato leaf curl South Carolina virus (SPLCSCV) ¹	Begomovirus ipomoeasouthcarolinaense
Sweet potato leaf curl virus (SPLCV) ¹	Begomovirus ipomoeae
Sweet potato leaf curl virus (SPLCV) ¹	Begomovirus ipomoeae
Sweet potato leaf curl virus (SPLCV) ¹	Begomovirus ipomoeae
Sweet potato mosaic virus (SPMV) ¹	Begomovirus ipomoeamusivi
Synedrella yellow vein clearing virus (SyYVCV) ¹	Begomovirus synedrellae
Telfairia golden mosaic virus (TelGMV) ¹	Begomovirus telfairiae
Tobacco curly shoot virus (TbCSV) ¹	Begomovirus nicotianae
Tobacco leaf curl Comoros virus (TbLCKMV) ¹	Begomovirus nicotianacomorosense
Tobacco leaf curl Cuba virus (TbLCCUV) ¹	Begomovirus nicotianacubaense
Tobacco leaf curl Dominican Republic virus (TbLCDOV) ¹	Begomovirus nicotianadominicanense
Tobacco leaf curl Pusa virus (TbLCPuV) ¹	Begomovirus nicotianapusaense
Tobacco leaf curl Thailand virus (TbLCTHV) ¹	Begomovirus nicotianathailandense
Tobacco leaf curl Yunnan virus (TbLCYnV) ¹	Begomovirus nicotianayunnanense
Tobacco leaf curl Zimbabwe virus (TbLCZV) ¹	Begomovirus nicotianazimbabwense
Tobacco leaf rugose virus (TbLRV) ¹	Begomovirus nicotianarugosi
Tobacco mottle leaf curl virus (TbMoLCV) ¹	Begomovirus nicotianavariati
Tobacco yellow crinkle virus (TbYCV) ¹	Begomovirus nicotianaparvi
Tomato bright yellow mosaic virus (ToBYMV) ¹	Begomovirus solanummusivi
Tomato bright yellow mottle virus (ToBYMoV) ¹	Begomovirus solanumflavariati
Tomato chino La Paz virus (ToChLPV) ¹	Begomovirus solanumlapazense
Tomato chlorotic leaf curl virus (ToCLCV) ¹	Begomovirus solanumpallidi
Tomato chlorotic leaf distortion virus (ToCILDV) ¹	Begomovirus solanumpallidicontorsionis
tomato chlorotic mottle Guyane virus (ToCMoGV) ¹	Begomovirus solanumpallidiguyanense
Tomato chlorotic mottle virus (ToCMoV) ¹	Begomovirus solanumpallidivariati
Tomato common mosaic virus (ToCmMV) ¹	Begomovirus solanumvulgarismusivi
Tomato curly stunt virus (ToCSV) ¹	Begomovirus solanumretorridi
Tomato dwarf leaf virus (ToDfLV) ¹	Begomovirus solanumparvi
Tomato enation leaf curl virus (ToELCV) ¹	Begomovirus solanumtumoris
Tomato golden leaf distortion virus (ToGLDV) ¹	Begomovirus solanumaureicontorsionis

Begomoviruses Detected:

Virus Name	Species Name
Tomato golden leaf spot virus (ToGLSV) ¹	Begomovirus solanumaureimaculae
Tomato golden mosaic virus (TGMV)	Begomovirus solanumaureimusivi
Tomato golden mottle virus (ToGMoV) ¹	Begomovirus solanumaureivariati
Tomato golden vein virus (TGVV)	Begomovirus solanumaureivenae
Tomato interveinal chlorosis virus (ToICV) ¹	Begomovirus solanumintervenae
Tomato latent virus (ToLV) ¹	Begomovirus solanumlatentis
Tomato leaf curl Anjouan virus (ToLCAnV) ¹	Begomovirus solanumanjouanense
Tomato leaf curl Arusha virus (ToLCArV) ¹	Begomovirus solanumarushaense
Tomato leaf curl Bangalore virus (ToLCBaV) ¹	Begomovirus solanumbangaloreense
Tomato leaf curl Bangladesh virus (ToLCBV) ¹	Begomovirus solanumbangladeshense
Tomato leaf curl Burkina Faso virus (ToLCBFV) ¹	Begomovirus solanumburkinafasoense
Tomato leaf curl Cebu virus (ToLCCeV) ¹	Begomovirus solanumcebuense
Tomato leaf curl China virus (ToLCCNV) ¹	Begomovirus solanumchinaense
Tomato leaf curl Comoros virus (ToLCKMV) ¹	Begomovirus solanumcomorosense
Tomato leaf curl Diana virus (ToLCDiV) ¹	Begomovirus solanumdianaense
Tomato leaf curl Ghana virus (ToLCGV) ¹	Begomovirus solanumghanaense
Tomato leaf curl Guangdong virus (ToLCGdV) ¹	Begomovirus solanumguangdongense
Tomato leaf curl Guangxi virus (ToLCGxV) ¹	Begomovirus solanumguangxiense
Tomato leaf curl Gujarat virus (ToLCGUv) ¹	Begomovirus solanumgujaratense
Tomato leaf curl Hainan virus (ToLCHaiV) ¹	Begomovirus solanumhainanense
Tomato leaf curl Hanoi virus (ToLCHaV) ¹	Begomovirus solanumhanoiense
Tomato leaf curl Hsinchu virus (ToLCHsV) ¹	Begomovirus solanumhsinchuense
Tomato leaf curl Hsinchu virus (ToLCHsV) ¹	Begomovirus solanumhsinchuense
Tomato leaf curl Iran virus (ToLCiRV) ¹	Begomovirus solanumiranense
Tomato leaf curl Japan virus (ToLCJV) ¹	Begomovirus solanumjapanense
Tomato leaf curl Java virus (ToLCJaV) ¹	Begomovirus solanumjavaense
Tomato leaf curl Joydebpur virus (ToLCJV) ¹	Begomovirus solanumjoydebpureense
Tomato leaf curl Karnataka virus (ToLCKaV) ¹	Begomovirus solanumkarnatakaense
Tomato leaf curl Karnataka virus 2 (ToLCKV2) ¹	Begomovirus solanumkarnatakasecondi
Tomato leaf curl Karnataka virus 3 (ToLCKV3) ¹	Begomovirus solanumkarnatakatertii
Tomato leaf curl Kerala virus (ToLCKeV) ¹	Begomovirus solanumkeralaense
Tomato leaf curl Kunene virus (ToLCKunV) ¹	Begomovirus solanumkunenense
Tomato leaf curl Laos virus (ToLCLV) ¹	Begomovirus solanumlaosense
Tomato leaf curl Liwa virus (ToLCLwV) ¹	Begomovirus solanumliwaense
Tomato leaf curl Madagascar virus (ToLCMGV) ¹	Begomovirus solanummadagascareense
Tomato leaf curl Mahé virus (ToLCMahV) ¹	Begomovirus solanummahense
Tomato leaf curl Malaysia virus (ToLCMYV) ¹	Begomovirus solanummalaysiaense
Tomato leaf curl Mali virus (ToLCMLV) ¹	Begomovirus solanummaliense
Tomato leaf curl Mindanao virus (ToLCMiV) ¹	Begomovirus solanummindanaoense
Tomato leaf curl Moheli virus (ToLCMohV) ¹	Begomovirus solanummoheliense
Tomato leaf curl Namakely virus (ToLCNaV) ¹	Begomovirus solanumnamakelyense
Tomato leaf curl new delhi virus (ToLCNDV)	Begomovirus solanumdelhiense
Tomato leaf curl new delhi virus 2 (ToLCNDV2) ¹	Begomovirus solanumdelhisecundi
Tomato leaf curl new delhi virus 4 (ToLCNDV4) ¹	Begomovirus solanumdelhiquarti

Begomoviruses Detected:

Virus Name	Species Name
Tomato leaf curl new delhi virus 5 (ToLCNDV5) ¹	Begomovirus solanumdelhiquinti
Tomato leaf curl Nigeria virus (ToLCNGV) ¹	Begomovirus solanumnigeriaense
Tomato leaf curl Palampur virus (ToLCPaV)	Begomovirus solanumpalampurens
Tomato leaf curl Patna virus (ToLCPaV) ¹	Begomovirus solanumpatnaense
Tomato leaf curl Philippines virus (ToLCPV) ¹	Begomovirus solanumphilippinense
Tomato leaf curl Pune virus (ToLCPuV) ¹	Begomovirus solanumpunense
Tomato leaf curl purple vein virus (ToLCPVV) ¹	Begomovirus solanumviolavenae
Tomato leaf curl Rajasthan virus (ToLCRaV) ¹	Begomovirus solanumrajasthanense
Tomato leaf curl Seychelles virus (ToLCSCV) ¹	Begomovirus solanumseychellesense
Tomato leaf curl Sinaloa virus (ToLCSiV) ¹	Begomovirus solanumsinaloaense
Tomato leaf curl Sri Lanka virus (ToLCLKV) ¹	Begomovirus solanumsrilankaense
Tomato leaf curl Sudan virus (ToLCSDV) ¹	Begomovirus solanumsudanense
Tomato leaf curl Sulawesi virus (ToLCSuV) ¹	Begomovirus solanumsulawesiense
Tomato leaf curl Taiwan virus (ToLCTV) ¹	Begomovirus solanumtaiwanense
Tomato leaf curl Tanzania virus (ToLCTZV) ¹	Begomovirus solanumtanzaniaense
Tomato leaf curl Toliara virus (ToLCToV) ¹	Begomovirus solanumtoliaraense
Tomato leaf curl Uganda virus (ToLCUV) ¹	Begomovirus solanumugandaense
Tomato leaf curl Vietnam virus (ToLCVV) ¹	Begomovirus solanumvietnamense
Tomato leaf curl virus (ToLCV) ¹	Begomovirus solanumaustaliaense
Tomato leaf deformation virus (ToLDeV)	Begomovirus solanumdepravationis
Tomato leaf distortion virus (ToLDV) ¹	Begomovirus solanumcontorsionis
Tomato mild mosaic virus (ToMMV) ¹	Begomovirus solanumtenuimusivi
Tomato mild yellow leaf curl Aragua virus (ToMYLCAV) ¹	Begomovirus solanumaraguaense
Tomato mosaic Havana virus (ToMHaV) ¹	Begomovirus solanumhavanaense
Tomato mosaic severe dwarf virus (ToMSDV) ¹	Begomovirus solanumseverparvi
Tomato mottle leaf curl virus (ToMoLCV) ¹	Begomovirus solanumvariatuminvolutionis
Tomato mottle Taino virus (ToMoTaV) ¹	Begomovirus solanumtainoense
Tomato mottle virus (ToMoV)	Begomovirus solanumvariati
Tomato mottle wrinkle virus (ToMoWV)	Begomovirus solanumargentinaense
Tomato rugose mosaic virus (ToRMV) ¹	Begomovirus solanumrugosi
Tomato rugose yellow leaf curl virus (TRYLCV) ¹	Begomovirus solanumrugosiflavi
Tomato severe leaf curl Kalakada virus (ToSLCKV) ¹	Begomovirus solanumkalakadaense
Tomato severe leaf curl virus (ToSLCV) ¹	Begomovirus solanumseveri
Tomato severe rugose virus (ToSRV) ¹	Begomovirus solanumseverugosi
Tomato twisted leaf virus (ToTLV) ¹	Begomovirus solanumtortilis
Tomato vein clearing leaf deformation virus (ToVCLDeV) ¹	Begomovirus solanumvenadepravationis
Tomato wrinkled mosaic virus (ToWMV) ¹	Begomovirus solanumcrispi
Tomato yellow leaf curl Axarquia virus (TYLCAxV) ¹	Begomovirus solanumflavusaxarquiaense
Tomato yellow leaf curl China virus (TYLCCNV) ¹	Begomovirus solanumflavuschinaense
Tomato yellow leaf curl Guangdong virus (TYLCGdV) ¹	Begomovirus solanumflavusguangdongense
Tomato yellow leaf curl Indonesia virus (TYLCIDV) ¹	Begomovirus solanumflavusindonesiaense
Tomato yellow leaf curl Kanchanaburi virus (TYLCKaV) ¹	Begomovirus solanumflavuskanchanaburiense
Tomato yellow leaf curl Malaga virus (TYLCMaV) ¹	Begomovirus solanumflavusmalacitanum
Tomato yellow leaf curl Mali virus (TYLCMLV) ¹	Begomovirus solanumflavusmaliense

Begomoviruses Detected:

Virus Name	Species Name
Tomato yellow leaf curl Sardinia virus (TYLCSaV)	Begomovirus solanumflavusardiniense
Tomato yellow leaf curl Shuangbai virus (TYLCSbV) ¹	Begomovirus solanumflavushuangbaiense
Tomato yellow leaf curl Thailand virus (TYLCTHV)	Begomovirus solanumflavusthailandense
Tomato yellow leaf curl Vietnam virus (TYLCVV) ¹	Begomovirus solanumflavusvietnamense
Tomato yellow leaf curl virus (TYLCV)	Begomovirus coheni
Tomato yellow leaf curl Yunnan virus (TYLCYnV) ¹	Begomovirus solanumflavusyunnanense
Tomato yellow leaf deformation dwarf virus (ToYLDdV) ¹	Begomovirus solanumflavusdepravationis
Tomato yellow leaf distortion virus (ToYLDV) ¹	Begomovirus solanumflavuscontorsionis
Tomato yellow margin leaf curl virus (ToYMLCV) ¹	Begomovirus solanumflavusmarginis
Tomato yellow mottle virus (ToYMoV) ¹	Begomovirus solanumflavusvariati
Tomato yellow spot virus (ToYSV) ¹	Begomovirus solanumflavusmaculae
Tomato yellow vein streak virus (ToYVSV) ¹	Begomovirus solanumflavusvenae
Triumfetta yellow mosaic virus (TrYMV) ¹	Begomovirus triumfettae
Velvet bean golden mosaic virus (VBGMV) ¹	Begomovirus mucunaflavi
Velvet bean severe mosaic virus (VBSMV) ¹	Begomovirus mucunae
Vernonia crinkle virus (VeCrV) ¹	Begomovirus vernoniae
Vernonia yellow vein Fujian virus (VeYVFjV) ¹	Begomovirus vernoniafujianense
Vernonia yellow vein virus (VeYVV) ¹	Begomovirus vernoniaavenae
Vigna yellow mosaic virus (ViYMV) ¹	Begomovirus vignae
Vinca leaf curl virus (VinLCV) ¹	Begomovirus vincae
Watermelon chlorotic stunt virus (WmCSV)	Begomovirus citrulli
West African Asystasia virus (WAAV3) ¹	Begomovirus asystasiatertii
West African Asystasia virus 1 (WAAV1) ¹	Begomovirus asystasiaprimi
West African Asystasia virus 2 (WAAV2) ¹	Begomovirus asystasiasecundi
Whitefly-associated begomovirus 1 (WfaBV1) ¹	Begomovirus bemisiaprimi
Whitefly-associated begomovirus 2 (WfaBV2) ¹	Begomovirus bemisiasecundi
Whitefly-associated begomovirus 3 (WfaBV3) ¹	Begomovirus bemisiatertii
Whitefly-associated begomovirus 4 (WfaBV4) ¹	Begomovirus bemisiaquarti
Whitefly-associated begomovirus 6 (WfaBV6) ¹	Begomovirus bemisiasexti
Whitefly-associated begomovirus 7 (WfaBV7) ¹	Begomovirus bemisiaseptimi
Wissadula golden mosaic virus (WGMV) ¹	Begomovirus wissadulae
Wissadula yellow mosaic virus (WYMV) ¹	Begomovirus wissadulaflavi
¹ Predicted detection by <i>in silico</i> analysis only	

Begomoviruses Not Detected:

Virus Name	Species Name
Bean chlorosis virus (BChMV)	Begomovirus phaseolichlorosis
Bean dwarf mosaic virus (BDMV)	Begomovirus moralesi
Bean white chlorosis mosaic virus (BWCMV) ¹	Begomovirus phaseolialbi
Cucumber chlorotic leaf virus (CuChLV)	Begomovirus cucumis
Hybanthus yellow mosaic virus (HybYMV) ¹	Begomovirus hybanthi
Jacquemontia mosaic Yucatan virus (JacMYuV) ¹	Begomovirus jacquemontiyucatanense
Jacquemontia yellow mosaic virus (JacYMV) ¹	Begomovirus jacquemontiamusivi
Macroptilium yellow spot virus (MacYSV) ¹	Begomovirus macroptilimaculae

Begomoviruses Not Detected:

Virus Name	Species Name
Passionfruit leaf distortion virus (PLDV) ¹	Begomovirus passifloracontorsionis
Sida chlorotic leaf virus (SiChLV) ¹	Begomovirus sidapallidi
Sida mosaic Alagoas virus (SiMALV) ¹	Begomovirus sidaalagoasense
Sida yellow blotch virus (SiYBV) ¹	Begomovirus sidaflavamaculae
Spinach yellow vein Sikar virus (SpiYVV) ¹	Begomovirus spinaciae
Verbena mottle virus (VMoV)	Begomovirus verbenae
¹ Predicted non-detection by <i>in silico</i> analysis only	

Exclusivity:**Cross-reacts With:**

Virus Name	Species Name
Juncus maritimus geminivirus 1 ¹	Maldovirus junci
Opuntia virus 1 ¹	Opunvirus opuntiae
¹ Predicted detection by <i>in silico</i> analysis only	

Does Not Cross-react With:

Virus Name	Species Name
Alfalfa leaf curl virus (ALCV) ¹	Capulavirus medicagonis
Alfalfa mosaic virus (AMV)	Alfamovirus AMV
Axonopus compressus streak virus (ACSV) ¹	Mastrevirus axonopi
Beet curly top Iran virus (BCTIV) ¹	Becurtovirus betae
Beet curly top virus (BCTV)	Curtovirus betae
Bromus catharticus striate mosaic virus (BCSMV) ¹	Mastrevirus bromi
Camellia chlorotic dwarf-associated virus (CaCDaV) ¹	Citlodavirus camelliae
Cauliflower mosaic virus (CaMV)	Caulimovirus tessellobrassicae
Chickpea chlorosis Australia virus (CpCAV) ¹	Mastrevirus arietini
Chickpea chlorosis virus (CpCV) ¹	Mastrevirus cicerosis
Chickpea chlorotic dwarf virus (CpCDV) ¹	Mastrevirus cicerparvi
Chickpea redleaf virus (CpRLV) ¹	Mastrevirus rubrumprimi
Chickpea redleaf virus 2 (CpRLV2) ¹	Mastrevirus rubrumsecundi
Chickpea yellow dwarf virus (CpYDV) ¹	Mastrevirus flavaparvi
Chickpea yellows virus (CpYV) ¹	Mastrevirus flavi
Chloris striate mosaic virus (CSMV) ¹	Mastrevirus chloris
Citrus chlorotic dwarf associated virus (CCDaV) ¹	Citlodavirus citri
Cucumber mosaic virus (CMV)	Cucumovirus CMV
Digitaria ciliaris striate mosaic virus (DCSMV) ¹	Mastrevirus ciliaris
Digitaria didactyla striate mosaic virus (DDSMV) ¹	Mastrevirus didactylae
Digitaria streak virus (DSV) ¹	Mastrevirus digitariae
Dragonfly-associated mastrevirus (DfasMV) ¹	Mastrevirus erythrodiplaxis
Eleusine indica associated virus (EIAV) ¹	Mastrevirus eleusinae
Eragrostis curvula streak virus (ECSV) ¹	Eragrovirus curvulae
Eragrostis minor streak virus (EMSV) ¹	Mastrevirus eragrostisminoris
Eragrostis streak virus (ESV) ¹	Mastrevirus eragrostis
Euphorbia caput-medusae latent virus (EcMLV) ¹	Capulavirus euphorbiae
Exomis microphylla associated virus (EmLV) ¹	Becurtovirus exomis

Does Not Cross-react With:

Virus Name	Species Name
French bean severe leaf curl virus (FbSLSV) ¹	Capulavirus phaseoli
Grapevine red blotch virus (GRBV) ¹	Grablovirus vitis
Horseradish curly top virus (HCTV) ¹	Curtovirus armoraciae
Maize streak dwarfing virus (MSDV) ¹	Mastrevirus fulleri
Maize streak Reunion virus (MSRV) ¹	Mastrevirus bourbonense
Maize streak virus (MSV)	Mastrevirus storeyi
Maize streak virus (MSV) ¹	Mastrevirus storeyi
Maize striate mosaic virus (MSMV) ¹	Mastrevirus striatis
Melenis repens associated virus (MeRAV) ¹	Mastrevirus melenis
Miscanthus streak virus (MiSV) ¹	Mastrevirus miscanthi
Mulberry crinkle leaf virus (MCLV) ¹	Mulcrilevirus mori
Oat dwarf virus (ODV) ¹	Mastrevirus avenae
Panicum streak virus (PanSV) ¹	Mastrevirus panici
Paper mulberry leaf curl virus 1 (PMLCV-1) ¹	Mulcrilevirus broussonetiae
Paper mulberry leaf curl virus 2 (PMLCV-2) ¹	Citlodavirus broussonetiae
Paspalum dilatatum striate mosaic virus (PDSMV) ¹	Mastrevirus dilatati
Paspalum striate mosaic virus (PSMV) ¹	Mastrevirus paspali
Plantago lanceolata latent virus (PILV) ¹	Capulavirus plantagonis
Potato virus Y (PVY)	Potyvirus yituberosi
Prunus geminivirus A (PrLV) ¹	Grablovirus pruni
Rice latent virus 1 (RLV 1) ¹	Mastrevirus oryzaprimi
Rice latent virus 2 (RLV 2) ¹	Mastrevirus oryzasecundi
Saccharum streak virus (SacSV) ¹	Mastrevirus sacchari
Sesame curly top virus (SeCTV) ¹	Turncurtovirus sesami
Sorghum arundinaceum associated virus (SAAV) ¹	Mastrevirus sorghi
Spinach curly top Arizona virus (SCTAV) ¹	Becurtovirus spinaciae
Spinach severe curly top virus (SpSCTV) ¹	Curtovirus spinaciae
Sporolobus striate mosaic virus 1 (SSMV1) ¹	Mastrevirus sporoboprimi
Sporolobus striate mosaic virus 2 (SSMV2) ¹	Mastrevirus sporobosecundi
Sugarcane chlorotic streak virus (SCSV) ¹	Mastrevirus saccharumpallidi
Sugarcane streak Egypt virus (SSEV) ¹	Mastrevirus saccharumegyptense
Sugarcane streak Reunion virus (SSREV) ¹	Mastrevirus saccharumbourbonense
Sugarcane streak virus (SSV) ¹	Mastrevirus saccharofficinari
Sugarcane striate virus (SStV) ¹	Mastrevirus saccharumstriati
Sugarcane white streak virus (SWSA) ¹	Mastrevirus saccharumalbusvenae
Sweet potato symptomless virus 1 (SpSV) ¹	Mastrevirus ipomoeae
Switchgrass mosaic-associated virus (SgMaV) ¹	Mastrevirus virgati
Tobacco mosaic virus (TMV)	Tobamovirus tabaci
Tobacco streak virus (TSV)	Ilarvirus TSV
Tobacco yellow dwarf virus (TbYDV) ¹	Mastrevirus tabaci
Tomato apical leaf curl virus (ToALCV) ¹	Topilevirus solani
Tomato geminivirus 1 (TGV1) ¹	Topilevirus lycopersici
Tomato pseudo-curly top virus (TPCTV) ¹	Topocuvirus solani
Tomato spotted wilt virus (TSWV)	Orthotospovirus tomatomaculae

Does Not Cross-react With:

Virus Name	Species Name
Turnip curly top virus (TCTV) ¹	Turncurtovirus brassicae
Turnip leaf roll virus (TuLCV) ¹	Turncurtovirus rapae
Urochloa streak virus (USV) ¹	Mastrevirus urochloae
Wheat dwarf India virus (WDIV) ¹	Mastrevirus tritici
Wheat dwarf virus (WDV) ¹	Mastrevirus hordei
¹ Predicted non-detection by <i>in silico</i> analysis only	

Diagnostic Specificity

True Negatives 98
Correct Diagnoses 98
Percent 100%

Selectivity:

No Matrix Effect Observed With:			
Ageratum leaves	Allium leaves	Aster leaves	Bacopa leaves
Bean leaves	Begonia leaves	Carthamus leaves	Cotton leaves
Cucumber leaves	Dahlia leaves	Hibiscus leaves	Impatiens leaves
Ipomea leaves	Lettuce leaves	Marigold leaves	Melon leaves
Nicotiana leaves	Pea leaves	Pelargonium leaves	Pepper leaves
Petunia leaves	Potato leaves	Rose leaves	Squash leaves
Tomato leaves	Vinca leaves	Watermelon leaves	Zinnia leaves
The hosts on the above list have been chosen to represent those which historically cause a range of matrix effects, in addition to those expected to be screened for this pathogen. Not all plant species susceptible to this pathogen have been screened, but may still be used with this assay unless otherwise noted below. As with all diagnostic tools, Agdia recommends confirming all results with a secondary detection method before making any economic decisions (ex: discarding plants due to positive test results, etc.).			

Matrix Effect Observed With:			
None Known			

Repeatability

Number of Samples 235
Replicates per Sample 2 - 8
Total Replicates 626
Replicates in Agreement 609
Percent Agreement 97.3%

Reproducibility

Number of Samples 48
Replicates per Sample 3
Number of Operators 4
Total Replicates 576
Replicates in Agreement 545
Percent Agreement 94.6%

Robustness

Planned deviation analysis:

No deviations from the user guide protocol were validated.

Stability:

	1-year stability (accelerated)	Real-time Stability Verification
Positive Sample (High)	Pass	Monitoring
Positive Sample (High)	Pass	Monitoring
Positive Sample (Low)	Pass	Monitoring
Positive Sample (Low)	Pass	Monitoring
Positive Sample (Low)	Pass	Monitoring
Positive Sample (Low)	Pass	Monitoring
Negative Sample	Pass	Monitoring
Negative Sample	Pass	Monitoring

Glossary

Diagnostic sensitivity¹:	The percentage of positive samples correctly identified in an experiment with known positive controls.
Diagnostic specificity¹:	The percentage of negative samples correctly identified in an experiment with known negative controls.
Analytical sensitivity³:	The smallest amount of target that can be detected reliably (this is sometimes referred to as the 'limit of detection')
Analytical specificity²:	(comprises inclusivity and exclusivity)
Inclusivity³:	The performance of a test with a range of target isolates covering genetic diversity, different geographical origin and/or hosts associated with the target organism.
Exclusivity³:	The performance of a test with a range of non-targets (e.g. cross-reaction with closely related organisms, contaminants)
Selectivity²:	The level of effect that matrices and relevant plant parts have on the performance of the assay.
Repeatability²:	The agreement between test replicates of the same sample tested by the same operator.
Reproducibility³:	The ability of a test to provide consistent results when applied to aliquots of the same sample tested under different conditions (e.g. time, users, equipment, location)
Robustness^{1,3}:	The extent to which varying test conditions (e.g. temperature, volume, change of buffers) affect the established test performance values. May also be referred to as planned deviation analysis.
Stability¹:	The performance of test reagents or controls over time.

References:

¹Groth-Helms, D., Rivera, Y., Martin, F. N., Arif, M., Sharma, P., Castlebury, L. A. (in press). Terminology and Guidelines for Diagnostic Assay Development and Validation: Best Practices for Molecular Tests. PhytoFrontiers.

²Eads, A., Groth-Helms, D., Davenport, B., Cha, X., Li, R., Walsh, C., Schuetz, K., (in press). The Commercial Validation of Three Tomato Brown Rugose Fruit Virus Assays. PhytoFrontiers.

³EPPO (2018) PM 7/76 (5) Use of EPPO Diagnostic Standards, EPPO Bulletin 48, 373– 377.

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AmplifyRP Test Kits employ recombinase polymerase amplification (RPA) technology, developed by TwistDx Limited, U.K. Use of the RPA process and probe technologies are protected by US patents 7,270,981 B2, 7,399,590 B2, 7,435,561 B2, 7,485,428 B2 and foreign equivalents in addition to pending patents.

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