

# Recommended Codes for Pest Organisms in Vegetable Crops

August 2020  
Subject to regular review

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Adopted by the ISF Working Group Disease Resistance Terminology

## Crops

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- [\*Abelmoschus esculentus\*](#) (Okra)  
[\*Allium ampeloprasum\*](#) and [\*A. cepa\*](#) (Leek and Onion)  
[\*Apium graveolens\*](#) (Celery and Celeriac)  
[\*Benincasa hispida\*](#) (Wax gourd)  
[\*Beta vulgaris\*](#) (Table beet and Swiss chard)  
[\*Brassicas\*](#) (Cabbage, Broccoli, Cauliflower, Chinese cabbage...)  
[\*Capsicum annuum\*](#) (Pepper)  
[\*Citrullus lanatus\*](#) (Watermelon)  
[\*Cucumis melo\*](#) (Melon)  
[\*Cucumis sativus\*](#) (Cucumber)  
[\*Cucurbita pepo\*](#), [\*C. maxima\*](#), [\*C. moschata\*](#) (Squash and pumpkin)  
[\*Diplotaxis tenuifolia\*](#) (Wild rocket)  
[\*Daucus carota\*](#) var. [\*sativa\*](#) (Carrot)  
[\*Eruca vesicaria\*](#) subsp. [\*sativa\*](#) (Arugula)  
[\*Lactuca sativa\*](#) (Lettuce)  
[\*Lagenaria siceraria\*](#) (Bottle gourd)  
[\*Ocimum basilicum\*](#) (Basil)  
[\*Petroselinum crispum\*](#) (Parsley)  
[\*Phaseolus vulgaris\*](#) (Dwarf and climbing French bean)  
[\*Pisum sativum\*](#) (Garden pea)  
[\*Raphanus sativus\*](#) (Radish)  
[\*Solanum integrifolium\*](#) (Eggplant/Aubergine rootstock)  
[\*Solanum lycopersicum\*](#) (Ex *Lycopersicon esculentum*) (Tomato)  
[\*Solanum melongena\*](#) (Eggplant/Aubergine)  
[\*Solanum torvum\*](#) (Eggplant/Aubergine rootstock)  
[\*Spinacia oleracea\*](#) (Spinach)  
[\*Valerianella locusta\*](#) (Corn salad)  
[\*Zea mays\*](#) (Sweet maize)

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**1. *Abelmoschus esculentus* (Okra)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Okra yellow vein mosaic virus</i>	Okra yellow vein mosaic	OYVMV
<b>Insects</b>		
<i>Amarasca biguttula</i>	Leaf hopper	Ab

**2. *Alliums* - *A. ampeloprasum* and *A. cepa* (Leek and Onion)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Leek yellow stripe virus</i>	Leek yellow stripe	LYSV
<b>Bacteria</b>		
<i>Pseudomonas syringae</i> pv. <i>porri</i>	Pseudomonas leek blight	Psp
<b>Fungi</b>		
<i>Alternaria porri</i>	Purple blotch	Ap
<i>Botrytis allii</i>	Botrytis neck rot	Ba
<i>Botrytis squamosa</i>	Botrytis leaf blight	Bs
<i>Colletotrichum gloeosporioides</i>	Twister	Cg
<i>Fusarium oxysporum</i> f. sp. <i>cepae</i>	Basal rot	Foc
<i>Peronospora destructor</i>	Downy mildew	Pd
<i>Phytophthora nicotianae</i>	Phytophthora neck and bulb rot	Pn
<i>Phytophthora porri</i>	White tip of leek	Pp
<i>Puccinia allii</i>	Rust	Pa
<i>Pyrenochaeta terrestris</i>	Pink root	Pt
<i>Sclerotium cepivorum</i>	White rot	Sc
<b>Insects</b>		
<i>Thrips tabaci</i>	Onion thrips	Tt
<b>Nematodes</b>		
<i>Ditylenchus dipsaci</i>	Stem and bulb nematode	Dd

**3. *Apium graveolens* (Celery and Celeriac)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Celery mosaic virus</i>	Celery mosaic	CeMV
<b>Fungi</b>		
<i>Fusarium oxysporum</i> f. sp. <i>apii</i>	Fusarium yellows and wilt	Foa
<i>Septoria apiicola</i>	Late blight	Sa

**4. *Benincasa hispida* (Wax gourd)**

Scientific name	English common name	Code
<b>Fungi</b>		
<i>Fusarium oxysporum</i> f. sp. <i>lagenariae</i>	Fusarium wilt	Fol
<i>Fusarium oxysporum</i> f. sp. <i>niveum</i>	Fusarium wilt	Fon
<i>Fusarium oxysporum</i> f. sp. <i>radicis-cucumerinum</i>	Root and stem rot	For

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**5. *Beta vulgaris* (Table beet and Swiss chard)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Beet curly top virus</i>	Beet curly top	BCTV
<i>Beet necrotic yellow vein virus</i>	Rhizomania	BNYVV
<b>Bacteria</b>		
<i>Pseudomonas syringae</i> pv. <i>aptata</i>	Bacterial blight	Psa
<i>Streptomyces scabies</i>	Common scab	Ss
<b>Fungi</b>		
<i>Cercospora beticola</i>	Leaf spot	Cb
<i>Colletotrichum dematium</i> f. sp. <i>spinaciae</i>	Anthraxnose	Cds
<i>Fusarium oxysporum</i> f. sp. <i>betae</i>	Fusarium yellows	Fob
<i>Pythium aphanidermatum</i>	Pythium root rot	Pa
<i>Phoma betae</i>	Phoma root rot, Leaf spot	Pb
<i>Peronospora farinosa</i> f. sp. <i>betae</i> (now <i>Peronospora schachtii</i> ) /2028/ <sup>1</sup>	Downy mildew	Pfb (now Ps)
<i>Ramularia beticola</i>	Ramularia leaf spot	Ra
<i>Rhizoctonia solani</i>	Rhizoctonia root and crown rot	Rs
<i>Verticillium albo-atrum</i>	Verticillium wilt	Va
<i>Verticillium dahliae</i>	Verticillium wilt	Vd

**6. Brassicas (Cabbage, Broccoli, Cauliflower, Chinese cabbage...)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Cauliflower mosaic virus</i>	Cauliflower mosaic	CaMV
<i>Turnip mosaic virus</i>	Turnip mosaic	TuMV
<b>Bacteria</b>		
<i>Pseudomonas syringae</i> pv. <i>maculicola</i>	Bacterial leaf spot, Peppery leaf spot	Psm
<i>Xanthomonas campestris</i> pv. <i>campestris</i>	Black rot	Xcc
<b>Fungi</b>		
<i>Albugo candida</i>	White rust	Ac
<i>Albugo macrospora</i>	White rust	Am
<i>Alternaria brassicae</i>	Black spot	Abe
<i>Alternaria brassicicola</i>	Black spot	Aba
<i>Erysiphe cruciferarum</i>	Powdery mildew	Ec
<i>Fusarium oxysporum</i> f. sp. <i>conglutinans</i>	Fusarium yellows	Foc
<i>Fusarium oxysporum</i> f. sp. <i>rapae</i>	Fusarium yellows	Foa
<sup>2</sup> <i>Hyaloperonospora brassicae</i> (ex <i>Peronospora</i> / <i>Hyaloperonospora parasitica</i> /2023/)	Downy mildew	Hb (ex Pp/ Hp)
<i>Mycosphaerella brassicicola</i>	Ring spot	Mb
<i>Leptosphaeria maculans</i> (anamorph: <i>Phoma lingam</i> )	Black leg	Lm
<i>Plasmodiophora brassicae</i>	Clubroot	Pb

<sup>1</sup> End of the transition period for the name change

<sup>2</sup> *Hyaloperonospora parasitica* is currently and widely known as *H. brassicae*. *H. parasitica* is a pathogen with a host range different to cultivated Brassicas.

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<i>Verticillium albo-atrum</i>	Verticillium wilt	Va
<i>Verticillium dahliae</i>	Verticillium wilt	Vd
<i>Verticillium longisporum</i>	Verticillium wilt	VI
<b>Insects</b>		
<i>Brevicoryne brassicae</i>	Cabbage aphid	Bb
<i>Plutella xylostella</i>	Diamond back moth	Px
<i>Thrips tabaci</i>	Thrips	Tt

**7. *Capsicum annuum* (Pepper)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Chilli veinial mosaic virus</i>	Chilli veinial mosaic	ChiVMV
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<i>Paprika mild mottle virus</i>	Paprika mild mottle	PaMMV
<i>Pepper mild mottle virus</i>	Pepper mild mottle	PMMoV
<i>Pepper mottle virus</i>	Pepper mottle	PepMoV
<i>Pepper yellow mosaic virus</i>	Pepper yellow mosaic	PepYMV
<i>Potato Y virus</i>	Potato Y	PVY
<i>Tobacco etch virus</i>	Tobacco etch	TEV
<i>Tobacco mild green mosaic virus</i>	Tobacco mild green mosaic	TMGMV
<i>Tobacco mosaic virus</i>	Tobacco mosaic	TMV
<i>Tomato mosaic virus</i>	Tomato mosaic	ToMV
<i>Tomato spotted wilt virus</i>	Tomato spotted wilt	TSWV
<b>Bacteria</b>		
<i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
<i>Xanthomonas campestris</i> pv. <i>vesicatoria</i> <sup>3</sup>	Bacterial spot	Xcv
<b>Fungi</b>		
<i>Colletotrichum acutatum</i>	Anthracnose	Ca
<i>Colletotrichum capsici</i>	Anthracnose	Cc
<i>Colletotrichum gloeosporioides</i>	Anthracnose	Cg
<i>Fusarium oxysporum</i> f. sp. <i>capsici</i>	Fusarium wilt	Foc
<i>Leveillula taurica</i> (anamorph: <i>Oidiopsis sicula</i> )	Powdery mildew	Lt
<i>Phytophthora capsici</i>	Phytophthora blight	Pc
<b>Nematodes</b>		
<i>Meloidogyne arenaria</i>	Root-knot	Ma
<i>Meloidogyne incognita</i>	Root-knot	Mi
<i>Meloidogyne javanica</i>	Root-knot	Mj

<sup>3</sup> Taxonomic studies on the bacteria causing bacterial spot on tomato and pepper have shown there are four different species (*Xanthomonas euvesicatoria*, *X. vesicatoria*, *X. perforans* and *X. gardneri*) that cannot be differentiated by pathogenicity as they all cause very similar symptoms. As resistance in tomato and pepper to bacterial spot is based on races that go across these species the old and traditional name *X. c. vesicatoria* and its acronym Xcv have been maintained.

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**8. *Citrullus lanatus* (Watermelon)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Cucumber vein yellowing virus</i>	Cucumber vein yellowing	CVYV
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<i>Papaya ringspot virus</i>	Papaya ringspot	PRSV
<i>Squash leaf curl virus</i>	Squash leaf curl	SLCV
<i>Watermelon mosaic virus</i>	Watermelon mosaic	WMV
<i>Zucchini yellow mosaic virus</i>	Zucchini yellow mosaic	ZYMV
<b>Fungi</b>		
<i>Colletotrichum orbiculare</i>	Anthraxnose	Co
<i>Fusarium oxysporum</i> f. sp. <i>niveum</i>	Fusarium wilt	Fon
<i>Podosphaera xanthii</i>	Powdery mildew	Px

**9. *Cucumis melo* (Melon)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Cucumber green mottle mosaic virus</i>	Cucumber green mottle	CGMMV
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<i>Cucumber vein yellowing virus</i>	Cucumber vein yellowing	CVYV
<i>Cucurbit yellow stunting disorder virus</i>	Cucurbit yellow stunting disorder	CYSDV
<i>Melon necrotic spot virus</i>	Melon necrotic spot	MNSV
<i>Moroccan watermelon mosaic virus</i>	Moroccan watermelon mosaic	MWMV
<i>Papaya ringspot virus</i>	Papaya ringspot	PRSV
<i>Squash leaf curl virus</i>	Squash leaf curl	SLCV
<i>Squash mosaic virus</i>	Squash mosaic	SqMV
<i>Tomato Leaf Curl New Dehli virus</i>	Tomato Leaf Curl New Dehli	ToLCNDV
<i>Watermelon mosaic virus</i>	Watermelon mosaic	WMV
<i>Zucchini yellow mosaic virus</i>	Zucchini yellows	ZYMV
<b>Fungi</b>		
<i>Golovinomyces cichoracearum</i>	Powdery mildew	Gc
<i>Fusarium oxysporum</i> f. sp. <i>melonis</i>	Fusarium wilt	Fom
<i>Pseudoperonospora cubensis</i>	Downy mildew	Pcu
<i>Podosphaera xanthii</i>	Powdery mildew	Px
<b>Insects</b>		
<i>Aphis gossypii</i>	Cotton aphid	Ag

**10. *Cucumis sativus* (Cucumber)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Beet pseudo yellowing virus</i>	Beet pseudo yellows virus	BPYV
<i>Cucumber green mottle mosaic virus</i>	Cucumber green mottle	CGMMV
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<i>Cucumber vein yellowing virus</i>	Cucumber vein yellowing	CVYV
<i>Cucurbit yellow stunting disorder virus</i>	Cucurbit yellow stunting disorder	CYSDV



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<i>Kyuri green mottle mosaic virus</i>	Cucumber green mottle	KGMMV
<i>Papaya ringspot virus</i>	Papaya ringspot	PRSV
<i>Squash leaf curl virus</i>	Squash leaf curl	SLCV
<i>Watermelon mosaic virus</i>	Watermelon mosaic	WMV
<i>Zucchini yellow mosaic virus</i>	Zucchini yellows	ZYMV
<b>Bacteria</b>		
<i>Erwinia tracheiphila</i>	Bacterial wilt	Et
<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Angular leaf spot	PsI
<b>Fungi</b>		
<i>Cladosporium cucumerinum</i>	Scab and gummosis	Ccu
<i>Colletotrichum orbiculare</i>	Anthracnose	Co
<i>Corynespora cassiicola</i>	Corynespora blight and target spot	Cca
<i>Golovinomyces cichoracearum</i>	Powdery mildew	Gc
<i>Fusarium oxysporum</i> f. sp. <i>cucumerinum</i>	Fusarium wilt	Foc
<i>Fusarium oxysporum</i> f. sp. <i>radicis-cucumerinum</i>	Fusarium crown and root rot	For
<i>Pythium aphanidermatum</i>	Damping off, Pythium fruit rot (cottony leak)	Pa
<i>Pseudoperonospora cubensis</i>	Downy mildew	Pcu
<i>Podosphaera xanthii</i>	Powdery mildew	Px

**11. Cucurbita pepo, C. maxima, C. moschata (Squash and pumpkin)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<i>Luffa yellow mosaic virus</i>	Luffa yellow mosaic	LYMV
<i>Papaya ringspot virus</i>	Papaya ringspot	PRSV
<i>Squash leaf curl virus</i>	Squash leaf curl	SLCV
<i>Squash mosaic virus</i>	Squash mosaic	SqMV
<i>Watermelon mosaic virus</i>	Watermelon mosaic	WMV
<i>Moroccan watermelon mosaic virus</i>	Moroccan watermelon mosaic	MWMV
<i>Zucchini yellow mosaic virus</i>	Zucchini yellows	ZYMV
<b>Fungi</b>		
<i>Golovinomyces cichoracearum</i>	Powdery mildew	Gc
<i>Fusarium oxysporum</i> f. sp. <i>cucumerinum</i>	Fusarium wilt	Foc
<i>Fusarium oxysporum</i> f. sp. <i>lagenariae</i>	Fusarium wilt	Fol
<i>Fusarium oxysporum</i> f. sp. <i>melonis</i>	Fusarium wilt	Fom
<i>Fusarium oxysporum</i> f. sp. <i>niveum</i>	Fusarium wilt	Fon
<i>Fusarium oxysporum</i> f. sp. <i>radicis-cucumerinum</i>	Root and stem rot	For
<i>Fusarium solani</i> f. sp. <i>cucurbitae</i>	Crown and root rot	Fsc
<i>Phomopsis sclerotoides</i>	Black root rot	Ps
<i>Pythium aphanidermatum</i>	Damping off, Pythium fruit rot (cottony leak)	Pa
<i>Phytophthora capsici</i>	Phytophthora crown and root rot	Pc
<i>Pseudoperonospora cubensis</i>	Downy mildew	Pcu
<i>Podosphaera xanthii</i>	Powdery mildew	Px

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**12. *Daucus carota* var. *sativa* (Carrot)**

Scientific name	English common name	Code
<b>Bacteria</b>		
<i>Xanthomonas hortorum</i> pv. <i>carotae</i>	Bacterial leaf blight	Xhc
<b>Fungi</b>		
<i>Alternaria dauci</i>	Alternaria leaf blight	Ad
<i>Alternaria radicina</i>	Black rot	Ar
<i>Cercospora carotae</i>	Cercospora leaf blight	Cc
<i>Erysiphe heraclei</i>	Powdery mildew	Eh
<i>Pythium sulcatum</i>	Cavity spot	Ps
<i>Pythium ultimum</i>	Cavity spot	Pu
<i>Pythium violae</i>	Cavity spot	Pv
<b>Insects</b>		
<i>Psila rosae</i>	Carrot fly	Pr
<b>Nematodes</b>		
<i>Meloidogyne incognita</i>	Root-knot	Mi
<i>Meloidogyne javanica</i>	Root-knot	Mj
<b>Phytoplasmas</b>		
<i>Aster yellows</i>	Aster yellows	Ay

**13. *Diplotaxis tenuifolia* (Wild rocket)**

Scientific name	English common name	Code
<b>Fungi</b>		
<i>Hyaloperonospora parasitica</i>	Downy mildew	Hp

**14. *Eruca vesicaria* subsp. *sativa* (Arugula)**

Scientific name	English common name	Code
<b>Fungi</b>		
<i>Hyaloperonospora parasitica</i>	Downy mildew	Hp

**15. *Lactuca sativa* (Lettuce)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Beet western yellows virus</i>	Yellows	BWYV
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<i>Lettuce necrotic stunt virus</i>	Lettuce die-back	LNSV
<i>Lettuce mosaic virus</i>	Lettuce mosaic	LMV
<i>Mirafiori lettuce big-vein virus</i>	Lettuce big vein	MLBVV
<i>Tomato bushy stunt virus</i>	Lettuce die-back	TBSV
<i>Tomato spotted wilt virus</i>	Spotted wilt	TSWV

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<b>Bacteria</b>		
<i>Pseudomonas cichorii</i>	Bacterial rot	Pc
<sup>4</sup> <i>Rhizorhapis suberifaciens</i> (ex <i>Sphingomonas suberifaciens</i> ) /2025/	Corky root	Rs (ex Ss)
<i>Xanthomonas campestris</i> pv. <i>vitians</i>	Bacterial spot	Xcv
<b>Fungi</b>		
<i>Bremia lactucae</i>	Downy mildew	Bl
<i>Fusarium oxysporum</i> f. sp. <i>lactucae</i>	Fusarium wilt	Fol
<i>Microdochium panattonianum</i>	Anthracnose	Mpa
<b>Insects</b>		
<i>Macrosiphum euphorbiae</i>	Potato aphid	Me
<i>Myzus persicae</i>	Green peach aphid	Mpe
<i>Nasonovia ribisnigri</i>	Lettuce leaf aphid	Nr
<i>Pemphigus bursarius</i>	Lettuce root aphid	Pb
<b>16. Lagenaria siceraria (Bottle gourd)</b>		
Scientific name	English common name	Code
<b>Viruses</b>		
<i>Cucumber green mottle mosaic virus</i>	Cucumber green mottle	CGMMV
<b>Fungi</b>		
<i>Fusarium oxysporum</i> f. sp. <i>lagenariae</i>	Fusarium wilt	Fol
<i>Fusarium oxysporum</i> f. sp. <i>niveum</i>	Fusarium wilt	Fon
<i>Fusarium oxysporum</i> f. sp. <i>radicis-cucumerinum</i>	Root and stem rot	For
<b>17. Ocimum basilicum (Basil)</b>		
Scientific name	English common name	Code
<b>Fungi</b>		
<i>Fusarium oxysporum</i> f. sp. <i>basilicum</i>	Fusarium wilt	Fob
<i>Peronospora belbahrii</i>	Downy mildew	Pb
<b>18. Petroselinum crispum (Parsley)</b>		
Scientific name	English common name	Code
<b>Fungi</b>		
<i>Plasmopara petroselini</i>	Downy mildew	Pp
<i>Septoria petroselini</i>	Septoria blight	Sp

<sup>4</sup> A recent review article in 2015 uses the new genus name *Rhizorhapis* based on work published in 2014 on the reclassification of the pathogen causing lettuce corky root (<http://apsjournals.apsnet.org/doi/pdf/10.1094/PDIS-09-14-0953-FE>).



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**19. *Phaseolus vulgaris* (Dwarf and climbing French bean)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Bean common mosaic virus</i>	Bean common mosaic	BCMV
<i>Bean common mosaic necrosis virus</i>	Bean common mosaic necrosis	BCMNV
<i>Beet curly top virus</i>	Beet curly top	BCTV
<i>Bean golden mosaic virus</i>	Bean golden mosaic	BGMV
<i>Bean golden yellow mosaic virus</i>	Bean golden yellow mosaic	BGYMV
<i>Beet mild curly top virus</i>	Mild curly top	BMCTV
<i>Beet severe curly top virus</i>	Severe curly top	BSCTV
<i>Bean yellow disorder virus</i>	Bean yellow disorder virus	BnYDV
<i>Bean yellow mosaic virus</i>	Bean yellow mosaic	BYMV
<i>Southern bean mosaic virus</i>	Bean southern virus	SBMV
<i>Cucumber mosaic virus</i>	Cucumber virus	CMV
<b>Bacteria</b>		
<i>Pseudomonas savastanoi</i> pv. <i>phaseolicola</i>	Halo blight	Psp
<i>Pseudomonas syringae</i> pv. <i>syringae</i>	Bacterial brown spot	Pss
<sup>5</sup> <i>Xanthomonas axonopodis</i> pv. <i>phaseoli</i>	Common or fuscous blight	Xap
<b>Fungi</b>		
<i>Aphanomyces euteiches</i>	Root rot	Ae
<i>Colletotrichum lindemuthianum</i>	Anthraco nose	Cl
<i>Fusarium oxysporum</i> f. sp. <i>phaseoli</i>	Fusarium wilt	Fop
<i>Fusarium solani</i> f. sp. <i>phaseoli</i>	Fusarium root rot	Fsp
<i>Sclerotinia sclerotiorum</i>	White mold	Ss
<i>Uromyces appendiculatus</i>	Rust	Ua

<sup>5</sup> Although *Xanthomonas axonopodis* pv. *phaseoli* and *X. fuscans* subsp. *fuscans* (Xff) (formely *X. axonopodis* pv. *phaseoli* var. *fuscans*) are taxonomically different bacterial species that are the causal agents of common bacterial blight, it is not possible to differentiate them based on symptoms under natural conditions and there is no evidence that resistance to these two species in bean differ.

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**20. *Pisum sativum* (Garden pea)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Bean leaf roll virus</i>	Pea leaf roll, pea top yellows	BLRV
<i>Bean yellow mosaic virus</i>	Bean yellow mosaic	BYMV
<i>Pea enation mosaic virus</i>	Pea enation mosaic	PEMV
<i>Pea seed-borne mosaic virus</i>	Pea seed-borne mosaic	PSbMV
<b>Bacteria</b>		
<i>Pseudomonas syringae</i> pv. <i>pisi</i>	Bacterial blight	Psp
<b>Fungi</b>		
<i>Aphanomyces euteiches</i>	Aphanomyces root rot	Ae
<i>Ascochyta pisi</i>	Ascochyta leaf and pod spot	Aps
<i>Ascochyta pinodella</i>	Leaf spot and foot rot	Apn
<i>Botrytis cinerea</i>	Grey mold	Bc
<i>Erysiphe pisi</i>	Powdery mildew	Ep
<i>Fusarium oxysporum</i> f. sp. <i>pisi</i>	Near wilt	Fop
<i>Fusarium solani</i>	Fusarium root rot	Fs
<i>Mycosphaerella pinodes</i>	Ascochyta blight	Mp
<i>Peronospora viciae</i>	Downy mildew	Pv

**21. *Raphanus sativus* (Radish)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Turnip mosaic virus</i>	Turnip mosaic	TuMV
<b>Bacteria</b>		
<i>Pseudomonas syringae</i> pv. <i>maculicola</i>	Bacterial leaf spot, Peppery leaf spot	Psm
<b>Fungi</b>		
<i>Albugo candida</i>	White rust	Ac
<i>Aphanomyces raphani</i>	Black root	Ar
<i>Fusarium oxysporum</i> f. sp. <i>raphani</i>	Yellows	For
<i>Hyaloperonospora brassicae</i> (ex <i>Peronospora</i> / <i>Hyaloperonospora parasitica</i> /2027/)	Downy mildew	Hb (ex Pp/ Hp)
<i>Plasmodiophora brassicae</i>	Clubroot	Pb
<i>Rhizoctonia solani</i>	Rhizoctonia scurf	Rs

**22. *Solanum integrifolium* (Eggplant rootstock)**

Scientific name	English common name	Code
<b>Fungi</b>		
<i>Fusarium oxysporum</i> f. sp. <i>melongenae</i>	Fusarium wilt	Fom

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**23. *Solanum lycopersicum* (ex *Lycopersicon esculentum*) (Tomato)<sup>6</sup>**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Beet curly top virus</i>	Curly top	BCTV
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<i>Groundnut ringspot virus</i>	Groundnut ringspot	GRSV
<i>Pepino mosaic virus</i>	Pepino mosaic	PepMV
<i>Tobacco mosaic virus</i>	Tobacco mosaic	TMV
<i>Tomato apex necrosis virus</i>	Tomato apex necrosis	ToANV
<i>Tomato chlorotic spot virus</i>	Tomato chlorotic spot	TCSV
<i>Tomato mosaic virus</i>	Tomato mosaic	ToMV
<i>Tomato torrado virus</i>	Tomato torrado	ToTV
<i>Tomato spotted wilt virus</i>	Tomato spotted wilt	TSWV
<i>Tomato yellow leaf curl virus</i>	Tomato yellow leaf curl	TYLCV <sup>7</sup>
<b>Bacteria</b>		
<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	Bacterial canker	Cmm
<i>Pseudomonas corrugata</i>	Pith necrosis	Pc
<i>Pseudomonas syringae</i> pv. <i>tomato</i>	Bacterial speck	Pst
<i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
<sup>8</sup> <i>Xanthomonas campestris</i> pv. <i>vesicatoria</i>	Bacterial spot	Xcv
<b>Fungi</b>		
<i>Alternaria alternata</i> f. sp. <i>lycopersici</i>	Alternaria stem canker	Aal
<i>Alternaria solani</i>	Early blight	As
<i>Corynespora cassiicola</i>	Target spot	Cc
<sup>9</sup> <i>Passalora fulva</i> (ex <i>Fulvia fulva</i> ) /2022/	Leaf mold	Pf (ex Ff)
<i>Fusarium oxysporum</i> f. sp. <i>lycopersici</i>	Fusarium wilt	Fol
<i>Fusarium oxysporum</i> f. sp. <i>radicis-lycopersici</i>	Fusarium crown and root rot	For
<i>Leveillula taurica</i> (anamorph: <i>Oidiopsis sicula</i> )	Powdery mildew	Lt
<i>Oidium neolycopersici</i>	Powdery mildew	On
<i>Phytophthora infestans</i>	Late blight	Pi
<i>Pyrenochaeta lycopersici</i>	Corky root rot	Pl
<i>Stemphylium botryosum</i> f. sp. <i>lycopersici</i>	Gray leaf spot	Sbl
<i>Stemphylium lycopersici</i>	Gray leaf spot	Sl
<i>Stemphylium solani</i>	Gray leaf spot	Ss
<i>Verticillium albo-atrum</i>	Verticillium wilt	Va
<i>Verticillium dahliae</i>	Verticillium wilt	Vd
<b>Nematodes</b>		
<i>Meloidogyne arenaria</i>	Root-knot	Ma
<i>Meloidogyne incognita</i>	Root-knot	Mi
<i>Meloidogyne javanica</i>	Root-knot	Mj

<sup>6</sup> Some of the codes also apply for tomato rootstocks.

<sup>7</sup> [Explanatory note to clarify the situation of TYLCV and TYLCD associated viruses](#)

<sup>8</sup> Taxonomic studies on the bacteria causing bacterial spot on tomato and pepper have shown there are four different species (*X. euvesicatoria*, *X. vesicatoria*, *X. perforans* and *X. gardneri*) that cannot be differentiated by pathogenicity as they all cause very similar symptoms. As resistance in tomato and pepper to bacterial spot is based on races that go across these species the old and traditional name *X. c. vesicatoria* and its acronym Xcv have been maintained.

<sup>9</sup> Both *Cladosporium fulvum* and *Fulvia fulva* are still in use. The current name has changed from *Fulvia fulva* to *Passalora fulva* (See <http://www.hort.cornell.edu/hightunnel/crops/pdfs/Leaf%20Mold%20on%20Tomatoes%20-%20final.pdf>).

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**24. *Solanum melongena* (Eggplant/Aubergine)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Tomato mosaic virus</i>	Tomato mosaic	ToMV
<i>Tomato spotted wilt virus</i>	Tomato spotted wilt	TSWV
<b>Bacteria</b>		
<i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
<b>Fungi</b>		
<i>Fusarium oxysporum</i> f. sp. <i>melongenae</i>	Fusarium wilt	Fom
<i>Verticillium albo-atrum</i>	Verticillium wilt	Va
<i>Verticillium dahliae</i>	Verticillium wilt	Vd
<b>Nematodes</b>		
<i>Meloidogyne incognita</i>	Root-knot	Mi

**25. *Solanum torvum* (Eggplant rootstock)**

Scientific name	English common name	Code
<b>Bacteria</b>		
<i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
<b>Fungi</b>		
<i>Fusarium oxysporum</i> f. sp. <i>melongena</i>	Fusarium wilt	Fom
<i>Verticillium albo-atrum</i>	Verticillium wilt	Va
<i>Verticillium dahliae</i>	Verticillium wilt	Vd
<b>Nematodes</b>		
<i>Meloidogyne incognita</i>	Root knot	Mi
<i>Meloidogyne mayaguensis</i> (Syn. <i>M. enterolobii</i> )	Root knot	Me
<i>Meloidogyne arenaria</i>	Root knot	Ma
<i>Meloidogyne javanica</i>	Root knot	Mj

**26. *Spinacia oleracea* (Spinach)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Cucumber mosaic virus</i>	Cucumber mosaic	CMV
<b>Fungi</b>		
<i>Albugo occidentalis</i>	White rust	Ao
<i>Cladosporium variabile</i>	Leaf spot	Cv
<i>Colletotrichum dematium</i>	Anthracoise	Cd
<i>Fusarium oxysporum</i> f. sp. <i>spinaciae</i>	Fusarium wilt	Fos
<i>Peronospora farinosa</i> f. sp. <i>spinaciae</i> (now <i>Peronospora effusa</i> ) /2028/	Downy mildew	Pfs (now Pe)
<i>Stemphyllium botryosum</i>	Stemphyllium leaf spot	Sb
<i>Verticillium dahliae</i>	Verticillium wilt	Vd
<b>Insects</b>		
<i>Liriomyza langei</i>	Leaf miner	LI

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**27. Valerianella locusta (Corn salad)**

Scientific name	English common name	Code
<b>Fungi</b>		
<i>Acidovorax valerianellae</i>	Bacterial spot	Av
<i>Thielaviopsis basicola</i>	Root rot	Tb

**28. Zea mays (Sweet corn)**

Scientific name	English common name	Code
<b>Viruses</b>		
<i>Maize dwarf mosaic virus</i>	Maize dwarf mosaic	MDMV
<i>Sugarcane mosaic virus</i>	Sugarcane mosaic	SCMV
<b>Bacteria</b>		
<i>Pantoea stewartii</i>	Stewart's wilt	Pst
<b>Fungi</b>		
<i>Bipolaris maydis</i>	Southern corn leaf blight	Bm
<i>Colletotrichum graminicola</i>	Anthraxnose leaf blight	Cg
<i>Exserohilum turcicum</i>	Northern leaf blight	Et
<i>Puccinia polysora</i>	Southern rust	Pp
<i>Puccinia sorghi</i>	Common rust	Ps
<i>Ustilago maydis</i>	Common smut	Um



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