Recommended Codes for Pest Organisms in Vegetable Crops

November 2022
Subject to annual review

Adopted by the ISF Expert Group Disease Resistance Terminology

CROPS

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 tenuiflia **(Wild rocket)**
Daucus carota **var. *sativa*** **(Carrot)**
Eruca vesicaria **subsp. *sativa*** **(Arugula)**
Lactuca sativa **(Lettuce)**
Lagenaria siceraria **(Bottle gourd)**
Luffa acutangula **(Ridge gourd)**
Luffa cylindrica **(Sponge gourd)**
Mormodica charantia **(Bittergourd)**
Ocinum 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 corn)**

1. *Abelmoschus esculentus* (Okra)

Scientific name	English common name	Code
Viruses		
[1]*Okra yellow vein mosaic virus (now Bhendi yellow vein mosaic virus) /2026*	Okra yellow vein mosaic/Bhendi yellow vein mosaic virus	OYVMV (now BYVMV)
Insects		
Amarasca biguttula	Leaf hopper	Ab

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

Scientific name	English common name	Code
Viruses		
Leek yellow stripe virus	Leek yellow stripe	LYSV
Bacteria		
Pseudomonas syringae pv. *porri*	Pseudomonas leek blight	Psp
Fungi		
Alternaria porri	Purple blotch	Ap
Botrytis allii	Botrytis neck rot	Ba
Botrytis squamosa (now Botryotinia squamosa) /2026	Botrytis leaf blight	Bs
Colletotrichum gloeosporioides	Twister	Cg
Fusarium oxysporum f.sp. *cepae*	Basal rot	Foc
Peronospora destructor	Downy mildew	Pd
Phytophthora nicotianae	Phytophthora neck and bulb rot	Pn
Phytophthora porri	White tip of leek	Php
Puccinia allii	Rust	Pa
Puccinia porri	Rust	Pup
Pyrenochaeta terrestris (now Setophoma terrestris)/2026	Pink root	Pt (now St)
Sclerotium cepivorum (now Stromatinia cepivora) /2026	White rot	Sc
Insects		
Thrips tabaci	Onion thrips	Tt
Nematodes		
Ditylenchus dipsaci	Stem and bulb nematode	Dd

[1] ***End of the transition period for the name change. The transition from one step to the next is three years to allow companies and their customers worldwide to become accustomed to the change.***

3. *Apium graveolens* (Celery and Celeriac)

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

4. *Benincasa hispida* (Wax gourd)

Scientific name	English common name	Code
Viruses		
Cucurbit aphid-borne yellows virus	Cucurbit aphid-borne yellows virus	CABYV
Cucumber green mottle mosaic virus	Cucumber green mottle mosaic virus	CGMMV
Cucumber mosaic virus	Cucumber virus 1	CMV
Papaya ringspot virus	Papaya ringspot virus	PRSV
Tomato Leaf Curl New Delhi Virus	Tomato leaf curl	ToLCNDV
Watermelon silver mottle virus	Watermelon silver mottle virus	WSMoV
Zucchini yellow mosaic virus	Zucchini yellow mosaic virus	ZYMV
Fungi		
Fusarium oxysporum f.sp. *lagenariae*	Fusarium wilt	Fol
Fusarium oxysporum f.sp. *niveum*	Fusarium wilt	Fon
Fusarium oxysporum f.sp. *radicis-cucumerinum*	Root and stem rot	For

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

Scientific name	English common name	Code
Viruses		
Beet curly top virus	Beet curly top	BCTV
Beet necrotic yellow vein virus	Rhizomania	BNYVV
Bacteria		
Pseudomonas syringae pv. *aptata*	Bacterial blight	Psa
Streptomyces scabies	Common scab	Ss
Fungi		
Cercospora beticola	Leaf spot	Cb
Colletotrichum dematium f.sp. *spinaciae (now Colletotrichum dematium) / 2026*	Anthracnose	Cds (now Cd)
Fusarium oxysporum f.sp. *betae*	Fusarium yellows	Fob

Pythium aphanidermatum	Pythium root rot	Pa
Phoma betae (now Pleospora bjoerlingii)/2026	Phoma root rot, Leaf spot	Pb
Peronospora farinosa f.sp. *betae (now Peronospora schachtii) / 2026*	Downy mildew	Pfb (now Ps)
Ramularia beticola	Ramularia leaf spot	Ra
Rhizoctonia solani	Rhizoctonia root and crown rot	Rs
Verticillium albo-atrum	Verticillium wilt	Va
Verticillium dahliae	Verticillium wilt	Vd

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

Scientific name	English common name	Code
Viruses		
Cauliflower mosaic virus	Cauliflower mosaic	CaMV
Turnip mosaic virus	Turnip mosaic	TuMV
Bacteria		
Pseudomonas syringae pv. *maculicola*	Bacterial leaf spot, Peppery leaf spot	Psm
Xanthomonas campestris pv. *campestris*	Black rot	Xcc
Fungi		
Albugo candida	White rust	Ac
Albugo macrospora (now Albugo candida) /2026	White rust	Am (now Ac)
Alternaria brassicae	Black spot	Abe
Alternaria brassicicola	Black spot	Aba
Erysiphe cruciferarum	Powdery mildew	Ec
Fusarium oxysporum f.sp. *conglutinans*	Fusarium yellows	Foc
Fusarium oxysporum f.sp. *rapae*	Fusarium yellows	Foa
[2]*Hyaloperonospora brassicae* (ex *Peronospora* / *Hyaloperonospora parasitica subsp. brassicae /2023*	Downy mildew	Hb (ex Pp/ Hp)
Mycosphaerella brassicicola	Ring spot	Mb
Leptosphaeria maculans (anamorph: Phoma lingam)	Black leg	Lm
Plasmodiophora brassicae	Clubroot	Pb
Verticillium albo-atrum	Verticillium wilt	Va
Verticillium dahliae	Verticillium wilt	Vd
Verticillium longisporum	Verticillium wilt	Vl
Insects		
Brevicoryne brassicae	Cabbage aphid	Bb
Plutella xylostella	Diamond back moth	Px
Thrips tabaci	Thrips	Tt

[2] *Hyaloperonospora parasitica* subs. brassicae is currently and widely known as *H. brassicae*. *H. parasitica* is a pathogen with a host range different to cultivated Brassicas.

7. *Capsicum annuum* (Pepper)

Scientific name	English common name	Code
Viruses		
Chili veinal mottle virus	Chili veinal mottle	ChiVMV
Cucumber mosaic virus	Cucumber mosaic	CMV
Paprika mild mottle virus	Paprika mild mottle	PaMMV
Pepper mild mottle virus	Pepper mild mottle	PMMoV
Pepper mottle virus	Pepper mottle	PepMoV
Pepper yellow mosaic virus	Pepper yellow mosaic	PepYMV
Potato virus Y	Potato virus Y	PVY
Tomato brown rugose fruit virus	Tomato brown rugose fruit	ToBRFV
Tobacco etch virus	Tobacco etch	TEV
Tobacco mild green mosaic virus	Tobacco mild green mosaic	TMGMV
Tobacco mosaic virus	Tobacco mosaic	TMV
Tomato mosaic virus	Tomato mosaic	ToMV
Tomato spotted wilt virus	Tomato spotted wilt	TSWV
Bacteria		
[3]*Ralstonia solanacearum*	Bacterial wilt	Rs
[4]*Xanthomonas campestris* pv. *vesicatoria (now Xanthomonas spp) /2026*	Bacterial spot	Xcv (now X spp)
Fungi		
Colletotrichum acutatum	Anthracnose	Ca
Colletotrichum capsici (now Colletotrichum truncatum) / 2026	Anthracnose	Cc (now Ct)
Colletotrichum gloeosporioides	Anthracnose	Cg
Fusarium oxysporum f.sp. *capsici*	Fusarium wilt	Foc
Leveillula taurica (anamorph: *Oidiopsis sicula)*	Powdery mildew	Lt
Phytophthora capsici	Phytophthora crown and root rot	Pc
Nematodes		
Meloidogyne arenaria	Root-knot	Ma
Meloidogyne incognita	Root-knot	Mi
Meloidogyne javanica	Root-knot	Mj

8. *Citrullus lanatus* (Watermelon)

Scientific name	English common name	Code
Viruses		
Cucumber vein yellowing virus	Cucumber vein yellowing	CVYV
Cucumber mosaic virus	Cucumber mosaic	CMV
Papaya ringspot virus	Papaya ringspot	PRSV

[3] *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al*., 2016.

[4] 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 we proposed to not specify the species but to keep the general name.

Squash leaf curl virus	Squash leaf curl	SLCV
Watermelon mosaic virus	Watermelon mosaic	WMV
Zucchini yellow mosaic virus	Zucchini yellow mosaic	ZYMV
Fungi		
Colletotrichum orbiculare	Anthracnose	Co
Fusarium oxysporum f.sp. *niveum*	Fusarium wilt	Fon
Podosphaera xanthii	Powdery mildew	Px

9. *Cucumis melo* (Melon)

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

10. *Cucumis sativus* (Cucumber)

Scientific name	English common name	Code
Viruses		
Beet pseudoyellows virus	Beet pseudoyellows virus	BPYV
Cucumber green mottle mosaic virus	Cucumber green mottle	CGMMV
Cucumber mosaic virus	Cucumber mosaic	CMV
Cucumber vein yellowing virus	Cucumber vein yellowing	CVYV
Cucurbit yellow stunting disorder virus	Cucurbit yellow stunting disorder	CYSDV
Kyuri green mottle mosaic virus	Kyuri green mottle	KGMMV
Papaya ringspot virus	Papaya ringspot	PRSV
Squash leaf curl virus	Squash leaf curl	SLCV
Tomato leaf curl New Delhi virus		ToLCNDV
Watermelon mosaic virus	Watermelon mosaic	WMV

Zucchini yellow mosaic virus	Zucchini yellows	ZYMV
Bacteria		
Erwinia tracheiphila	Bacterial wilt	Et
Pseudomonas syringae pv. *lachrymans*	Angular leaf spot	Psl
Fungi		
Cladosporium cucumerinum	Scab and gummosis	Ccu
Colletotrichum orbiculare	Anthracnose	Co
Corynespora cassiicola	Corynespora blight and target spot	Cca
Golovinomyces cichoracearum	Powdery mildew	Gc
Fusarium oxysporum f.sp. *radicis-cucumerinum*	Fusarium crown and root rot	For
Pythium aphanidermatum	Damping off , Pythium fruit rot (cottony leak)	Pa
Pseudoperonospora cubensis	Downy mildew	Pcu
Podosphaera xanthii	Powdery mildew	Px

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

Scientific name	English common name	Code
Viruses		
Cucumber mosaic virus	Cucumber mosaic	CMV
Luffa yellow mosaic virus	Luffa yellow mosaic	LYMV
Papaya ringspot virus	Papaya ringspot	PRSV
Squash leaf curl virus	Squash leaf curl	SLCV
Squash mosaic virus	Squash mosaic	SqMV
Tomato leaf curl New Delhi virus		ToLCNDV
Watermelon mosaic virus	Watermelon mosaic	WMV
Moroccan watermelon mosaic virus	Moroccan watermelon mosaic	MWMV
Zucchini yellow mosaic virus	Zucchini yellows	ZYMV
Fungi		
Golovinomyces cichoracearum	Powdery mildew	Gc
Fusarium oxysporum f.sp. *cucumerinum*	Fusarium wilt	Foc
Fusarium oxysporum f.sp. *lagenariae*	Fusarium wilt	Fol
Fusarium oxysporum f.sp. *melonis*	Fusarium wilt	Fom
Fusarium oxysporum f.sp. *niveum*	Fusarium wilt	Fon
Fusarium oxysporum f.sp. *radicis-cucumerinum*	Root and stem rot	For
Fusarium solani f.sp. *cucurbitae*	Crown and root rot	Fsc
Phomopsis sclerotioides (now Diaporthe sclerotioides) /2026	Black root rot	Ps (now Ds)
Pythium aphanidermatum	Damping off, Pythium fruit rot (cottony leak)	Pa
Phytophthora capsici	Phytopthora crown and root rot	Pc
Pseudoperonospora cubensis	Downy mildew	Pcu
Podosphaera xanthii	Powdery mildew	Px

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

Scientific name	English common name	Code
Bacteria		

Xanthomonas hortorum pv. *carotae*	Bacterial leaf blight	Xhc
Fungi		
Alternaria dauci	Alternaria leaf blight	Ad
Alternaria radicina	Black rot	Ar
Cercospora carotae	Cercospora leaf blight	Cc
Erysiphe heraclei	Powdery mildew	Eh
Pythium sulcatum	Cavity spot	Ps
Pythium ultimum (now Globisporangium ultimum) /2026	Cavity spot	Pu (now Gu)
Pythium violae (now Globisporangium violae) / 2026	Cavity spot	Pv (now Gv)
Insects		
Psila rosae	Carrot fly	Pr
Nematodes		
Meloidogyne incognita	Root-knot	Mi
Meloidogyne javanica	Root-knot	Mj
Phytoplasmas		
Aster yellows	Aster yellows	Ay

13. *Diplotaxis tenuiflia* (Wild rocket)

Scientific name	**English common name**	**Code**
Fungi		
Hyaloperonospora parasitica	Downy mildew	Hp

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

Scientific name	**English common name**	**Code**
Fungi		
Hyaloperonospora parasitica	Downy mildew	Hp

15. *Lactuca sativa* (Lettuce)

Scientific name	**English common name**	**Code**
Viruses		
Beet western yellows virus	Yellows	BWYV
Cucumber mosaic virus	Cucumber mosaic	CMV
Impatiens necrotic spot virus	Impatiens necrotic spot virus	INSV
Lettuce necrotic stunt virus (now Moroccan pepper virus) /2027	Lettuce die-back	LNSV (now MPV)
Lettuce mosaic virus	Lettuce mosaic	LMV
Mirafiori lettuce big-vein virus	Lettuce big vein	MLBVV
Tomato bushy stunt virus	Lettuce die-back	TBSV
Tomato spotted wilt virus	Spotted wilt	TSWV
Bacteria		
Pseudomonas cichorii	Bacterial rot	Pc

[5] *Rhizorhapis suberifaciens* (ex *Sphingomonas suberifaciens*) /2025	Corky root	Ss (now Rs)
Xanthomonas campestris pv. *vitians (now Xanthomonas axonopodis pv. vitians) /2026*	Bacterial spot	Xcv (now Xav)
Fungi		
Bremia lactucae	Downy mildew	Bl
Fusarium oxysporum f.sp. *lactucae*	Fusarium wilt	Fol
Microdochium panattonianum	Anthracnose	Mpa
Insects		
Macrosiphum euphorbiae	Potato aphid	Me
Myzus persicae	Green peach aphid	Mpe
Nasonovia ribisnigri	Lettuce leaf aphid	Nr
Pemphigus bursarius	Lettuce root aphid	Pb

16. *Lagenaria siceraria* (Bottle gourd)

Scientific name	**English common name**	**Code**
Viruses		
Cucumber green mottle mosaic virus	Cucumber green mottle	CGMMV
Fungi		
Fusarium oxysporum f.sp. *lagenariae*	Fusarium wilt	Fol
Fusarium oxysporum f.sp. *niveum*	Fusarium wilt	Fon
Fusarium oxysporum f.sp. *radicis-cucumerinum*	Root and stem rot	For

17. *Luffa acutangula* (Ridge gourd)

Scientific name	English common name	Code
Viruses		
Tomato Leaf Curl New Delhi Virus	Tomato Leaf Curl	ToLCNDV
Bacteria		
[6]*Ralstonia solanacearum* race 1, biovar 3	Bacterial wilt	Rs

18. *Luffa cylindrica* (Sponge gourd)

Scientific name	English common name	Code
Fungi		
Fusarium oxysporum f. sp. *luffae*	Fusarium wilt	Fol
Pseudoperonospora cubensis	Downy mildew	Pc
Bacteria		

[5] 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 (https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijs.0.058909-0, http://apsjournals.apsnet.org/doi/pdf/10.1094/PDIS-09-14-0953-FE) .

[6] *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al*., 2016.

[7]*Ralstonia solanacearum*	Bacterial wilt	Rs

19. *Momordica charantia* (Bittergourd)

Scientific name	English common name	Code
Viruses		
Cucurbit aphid-borne yellows virus	Cucurbit aphid-borne yellows virus	CABYV
Cucumber mosaic virus	Cucumber virus 1	CMV
Papaya ring spot virus	Papaya ringspot	PRSV
Tomato Leaf Curl New Delhi Virus	Tomato Leaf Curl	ToLCNDV
Zucchini yellow mosaic virus	Yellow mosaic	ZYMV
Fungi		
Podosphaera xanthii	Powdery Mildew	Px

20. *Ocimum basilicum* (Basil)

Scientific name	**English common name**	**Code**
Fungi		
Fusarium oxysporum f.sp. basilicum (now Fusarium oxysporum f.sp. basilici) /2026	Fusarium wilt	Fob
Peronospora belbahrii	Downy mildew	Pb

21. *Petroselinum crispum* (Parsley)

Scientific name	**English common name**	**Code**
Fungi		
Plasmopara petroselini	Downy mildew	Pp
Septoria petroselini	Septoria blight	Sp

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

Scientific name	**English common name**	**Code**
Viruses		
Bean common mosaic virus	Bean common mosaic	BCMV
Bean common mosaic necrosis virus	Bean common mosaic necrosis	BCMNV
Beet curly top virus	Beet curly top	BCTV
Bean golden mosaic virus	Bean golden mosaic	BGMV
Bean golden yellow mosaic virus	Bean golden yellow mosaic	BGYMV
Beet mild curly top virus (now Beet curly top virus) /2026	Beet curly top	BMCTV (now BCTV)
Beet severe curly top virus (now Beet curly top virus) /2026	Beet curly top	BSCTV (now BCTV)
Bean yellow disorder virus	Bean yellow disorder virus	BnYDV
Bean yellow mosaic virus	Bean yellow mosaic	BYMV
Southern bean mosaic virus	Bean southern virus	SBMV

[7] *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al*., 2016.

Cucumber mosaic virus	Cucumber virus	CMV
Bacteria		
Pseudomonas savastanoi pv. *phaseolicola*	Halo blight	Psp
Pseudomonas syringae pv. *syringae*	Bacterial brown spot	Pss
[8]*Xanthomonas axonopodis* pv. *phaseoli*	Common or fuscous blight	Xap
Fungi		
Aphanomyces euteiches	Root rot	Ae
Colletotrichum lindemuthianum	Anthracnose	Cl
Fusarium oxysporum f.sp. *phaseoli*	Fusarium wilt	Fop
Fusarium solani f.sp. *phaseoli*	Fusarium root rot	Fsp
Sclerotinia sclerotiorum	White mold	Ss
Uromyces appendiculatus	Rust	Ua

23. *Pisum sativum* (Garden pea)

Scientific name	**English common name**	**Code**
Viruses		
Bean leafroll virus	Pea leaf roll, pea top yellows	BLRV
Bean yellow mosaic virus	Bean yellow mosaic	BYMV
Pea enation mosaic virus	Pea enation mosaic	PEMV
Pea seed-borne mosaic virus	Pea seed-borne mosaic	PSbMV
Bacteria		
Pseudomonas syringae pv. *pisi*	Bacterial blight	Psp
Fungi		
Aphanomyces euteiches	Aphanomyces root rot	Ae
Ascochyta pisi (now Didymella pisi) /2026	Ascochyta leaf and pod spot	Aps (now Dp)
Ascochyta pinodella (now Didymella pinodella) /2026	Leaf spot and foot rot	Apn (now Dpn)
Botrytis cinerea	Grey mold	Bc
Erysiphe pisi	Powdery mildew	Ep
Fusarium oxysporum f.sp. *pisi*	Near wilt	Fop
Fusarium solani (now Neocosmospora solani) / 2026	Fusarium root rot	Fs (now Ns)
Mycosphaerella pinodes (now Didymella pinodes) /2026	Ascochyta blight	Mp (now Dp)
Peronospora viciae	Downy mildew	Pv

24. *Raphanus sativus* (Radish)

[8] 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.

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

25. *Solanum integrifolium* (Eggplant rootstock)

Scientific name	English common name	Code
Fungi		
Fusarium oxysporum f.sp. *melongenae*	Fusarium wilt	Fom

26. [9]*Solanum lycopersicum* (ex *Lycopersicon esculentum*) (Tomato)

Scientific name	English common name	Code
Viruses		
Beet curly top virus	Curly top	BCTV
Cucumber mosaic virus	Cucumber mosaic	CMV
Groundnut ringspot virus	Groundnut ringspot	GRSV
Pepino mosaic virus	Pepino mosaic	PepMV
Tobacco mosaic virus	Tobacco mosaic	TMV
Tomato apex necrosis virus (now Tomato marchitez virus) /2026	Tomato apex necrosis	ToANV (now ToMarV)
Tomato brown rugose fruit virus	Tomato brown rugose fruit	ToBRFV
Tomato chlorotic spot virus	Tomato chlorotic spot	TCSV
Tomato mosaic virus	Tomato mosaic	ToMV
Tomato torrado virus	Tomato torrado	ToTV
Tomato spotted wilt virus	Tomato spotted wilt	TSWV

[9] Some of the codes also apply for tomato rootstocks.

Tomato yellow leaf curl virus	Tomato yellow leaf curl	TYLCV[10]
Bacteria		
Clavibacter michiganensis subsp. *michiganensis*	Bacterial canker	Cmm
Pseudomonas corrugata	Pith necrosis	Pc
Pseudomonas syringae pv. *tomato*	Bacterial speck	Pst
[11]*Ralstonia solanacearum*	Bacterial wilt	Rs
[12] *Xanthomonas campestris* pv. *vesicatoria (now Xanthomonas spp) /2026*	Bacterial spot	Xcv (now X spp)
Fungi		
Alternaria alternata f.sp. *lycopersici*	Alternaria stem canker	Aal
Alternaria solani	Early blight	As
Corynespora cassiicola	Target spot	Cc
[13] *Passalora fulva (ex Fulvia fulva) /2022*	Leaf mold	Pf (ex Ff)
Fusarium oxysporum f.sp. *lycopersici*	Fusarium wilt	Fol
Fusarium oxysporum f.sp. *radicis-lycopersici*	Fusarium crown and root rot	For
Leveillula taurica (anamorph: *Oidiopsis sicula)*	Powdery mildew	Lt
Oidium neolycopersici (now Pseudoidium neolycopersici) /2026	Powdery mildew	On (now Pn)
Phytophthora infestans	Late blight	Pi
Pyrenochaeta lycopersici (now Pseudopyrenochaeta lycopersici) /2026	Corky root rot	Pl
Stemphylium botryosum f.sp. *lycopersici*	Gray leaf spot	Sbl
Stemphylium lycopersici	Gray leaf spot	Sl
Stemphylium solani	Gray leaf spot	Ss
Verticillium albo-atrum	Verticillium wilt	Va
Verticillium dahliae	Verticillium wilt	Vd
Nematodes		
Meloidogyne arenaria	Root-knot	Ma
Meloidogyne incognita	Root-knot	Mi
Meloidogyne javanica	Root-knot	Mj

27. *Solanum melongena* (Eggplant/Aubergine)

Scientific name	**English common name**	**Code**
Viruses		
Tomato mosaic virus	Tomato mosaic	ToMV
Tomato spotted wilt virus	Tomato spotted wilt	TSWV
Bacteria		
[14]*Ralstonia solanacearum*	Bacterial wilt	Rs
Fungi		

[10] Explanatory note to clarify the situation of TYLCV and TYLCD associated viruses

[11] *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al*., 2016.

[12] 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 we proposed to not specify the species but to keep the general name.

[13] Both *Cladosporium fulvum* and *Fulvia fulva* are still in use. The current name has changed from *Fulvia fulva* to *Passalora fulva* (See https://rvpadmin.cce.cornell.edu/uploads/doc_128.pdf).

[14] *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al*., 2016.

Fusarium oxysporum f.sp. *melongenae*	Fusarium wilt	Fom
Verticillium albo-atrum	Verticillium wilt	Va
Verticillium dahliae	Verticillium wilt	Vd
Nematodes		
Meloidogyne incognita	Root-knot	Mi

28. *Solanum torvum* (Eggplant rootstock)

Scientific name	English common name	Code
Bacteria		
[15]*Ralstonia solanacearum*	Bacterial wilt	Rs
Fungi		
Fusarium oxysporum f.sp. *melongenae*	Fusarium wilt	Fom
Verticillium albo-atrum	Verticillum wilt	Va
Verticillium dahliae	Verticillum wilt	Vd
Nematodes		
Meloidogyne incognita	Root knot	Mi
*Meloidogyne mayaguensis (*Syn. *M. enterolobii)*	Root knot	Me
Meloidogyne arenaria	Root knot	Ma
Meloidogyne javanica	Root knot	Mj

29. *Spinacia oleracea* (Spinach)

Scientific name	English common name	Code
Viruses		
Cucumber mosaic virus	Cucumber mosaic	CMV
Fungi		
Albugo occidentalis (now Wilsoniana occidentalis) /2026	White rust	Ao (now Wo)
Cladosporium variabile	Leaf spot	Cv
[16]*Colletotrichum dematium*	Anthracnose	Cd
Fusarium oxysporum f. sp. *spinaciae*	Fusarium wilt	Fos
Peronospora effusa (ex Peronospora farinosa f. sp. *spinaciae) /2023*	Downy mildew	Pe (ex Pfs)
[17]*Stemphylium botryosum (now Stemphylium beticola)/ 2027*	Stemphylium leaf spot	Sb
[18]*Stemphylium vesicarium*	Stemphylium leaf spot	Sv
Verticillium dahliae	Verticillium wilt	Vd
Insects		
Liriomyza langei	Leaf miner	Ll

30. *Valerianella locusta* (Corn salad)

[15] *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al*., 2016.

[16] As per *Index Fungorum* this is the correct name for this pathogen, Syn. *Colletotrichum dematium f. spinaciae; Colletotrichum spinaciae.*

[17] As per Woudenberg *et al.*, 2017 and Liu *et al*., 2020 *Stemphylium botryosum* will be renamed as *Stemphylium beticola* based on ITS rDNA, gapdh and cmdA sequences.

[18] *S. botryosum* isolates from WSU were analyzed as *S. beticola*. Majority of new isolates were analyzed as *S. vesicarium*. It is proposed to breeding companies to identify their isolates based on 'new' sequence analysis. Resistance is published for *S. vesicarium* (Liu et al., 2020; du Toit, 2020).

Scientific name	English common name	Code
Bacteria		
Acidovorax valerianellae	Bacterial spot	Av
Fungi		
Thielaviopsis basicola (now Berkeleyomyces basicola) /2026	Root rot	Tb (now Bb)

31. *Zea mays* (Sweet corn)

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

CONSULTED SOURCES FOR THE REVIEW

du Toit, 2020. Stemphylium leaf spot of spinach: Etiology & Management. Presentation at CSA spinach meeting

EPPO Global database: https://gd.eppo.int/

Francis, I. M., Jochimsen, K. N., De Vos, P., & van Bruggen, A. H. (2014). Reclassification of rhizosphere bacteria including strains causing corky root of lettuce and proposal of rhizorhapis suberifaciens gen. nov., comb. Nov., Sphingobium Mellinum sp. nov., Sphingobium Xanthum sp. nov. and Rhizorhabdus argentea gen. nov., sp. nov.. International Journal of Systematic and Evolutionary Microbiology, 64(Pt_4), 1340–1350. https://doi.org/10.1099/ijs.0.058909-0

Van Bruggen, A. and Francis, I., 2015. Case Investigation and Forensic Evidence for a New Plant Disease: The Case of Lettuce Corky Root. Plant Disease, 99(3), pp.300-309.

International Committee on the Taxonomy of Viruses: https://talk.ictvonline.org/taxonomy/

Index Fungorum: http://www.indexfungorum.org/Names/Names.asp

Leaf mold on tomatoes - final - cornell university. (n.d.). Retrieved January 13, 2022, from https://rvpadmin.cce.cornell.edu/uploads/doc_128.pdf

Liu, B., Stein, L., Cochran, K., du Toit, L. J., Feng, C., Dhillon, B., & Correll, J. C. (2020). Characterization of leaf spot pathogens from several spinach production areas in the United States. *Plant Disease*, *104*(7), 1994–2004. https://doi.org/10.1094/pdis-11-19-2450-re

MycoBank: http://www.mycobank.org/

Prior et al. BMC Genomics (2016) 17:90 DOI 10.1186/s12864-016-2413-z

W. M. Wintermantel and L. L. Hladky (2013) Complete Genome Sequence and Biological Characterization of Moroccan pepper virus (MPV) and Reclassification of Lettuce necrotic stunt virus as MPV, Phytopathology 103, 501-508

Woudenberg JHC, Hanse B, van Leeuwen GCM, Groenewald JZ, Crous PW. Stemphylium revisited. Stud Mycol. 2017;87:77-103. doi:10.1016/j.simyco.2017.06.001