

Recommended Codes for Pest Organisms in Vegetable Crops

April 2024
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)
[*Brassicacae*](#) (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)
[*Luffa acutangula*](#) (Ridge gourd)
[*Luffa cylindrica*](#) (Sponge gourd)
[*Mormodica charantia*](#) (Bittergourd)
[*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 corn)

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

1. *Abelmoschus esculentus* (Okra)

Scientific name	English common name	Code
Viruses		
¹ Bhendi yellow vein mosaic virus (ex Okra yellow vein mosaic virus) / 2026	Bhendi yellow vein mosaic / Okra yellow vein mosaic	BYVMV (ex OYVMV)
Insects		
<i>Amarasca biguttula</i>	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		
<i>Pseudomonas syringae</i> pv. <i>porri</i>	Pseudomonas leek blight	Psp
Fungi		
<i>Alternaria porri</i>	Purple blotch	Ap
<i>Botrytis allii</i>	Botrytis neck rot	Ba
<i>Botryotinia squamosa</i> (ex <i>Botrytis squamosa</i>) / 2026	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	Php
<i>Puccinia allii</i>	Rust	Pa
<i>Puccinia porri</i>	Rust	Pup
<i>Setophoma terrestris</i> (ex <i>Pyrenochaeta terrestris</i>) / 2026	Pink root	St (ex Pt)
<i>Stromatinia cepivora</i> (ex <i>Sclerotium cepivorum</i>) / 2026	White rot	Sc
Insects		
<i>Thrips tabaci</i>	Onion thrips	Tt
Nematodes		
<i>Ditylenchus dipsaci</i>	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.**

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

3. *Apium graveolens* (Celery and Celeriac)

Scientific name	English common name	Code
Viruses		
Celery mosaic virus	Celery mosaic	CeMV
Fungi		
<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
Viruses		
Cucurbit aphid-borne yellows virus	Cucurbit aphid-borne yellows	CABYV
Cucumber green mottle mosaic virus	Cucumber green mottle mosaic	CGMMV
Cucumber mosaic virus	Cucumber mosaic	CMV
Papaya ringspot virus	Papaya ringspot	PRSV
Tomato leaf curl New Delhi virus	Tomato leaf curl New Delhi	ToLCNDV
Watermelon silver mottle virus	Watermelon silver mottle	WSMoV
Zucchini yellow mosaic virus	Zucchini yellow mosaic	ZYMV
Fungi		
<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

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		
<i>Pseudomonas syringae</i> pv. <i>aptata</i>	Bacterial blight	Psa
<i>Streptomyces scabies</i>	Common scab	Ss
Fungi		
<i>Cercospora beticola</i>	Leaf spot	Cb
<i>Colletotrichum dematium</i> (ex <i>Colletotrichum dematium</i> f.sp. <i>spinaciae</i>) / 2026	Anthracoze	Cd (ex Cds)
<i>Fusarium oxysporum</i> f.sp. <i>betae</i>	Fusarium yellows	Fob

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

<i>Pythium aphanidermatum</i>	Pythium root rot	Pa
² <i>Neocamarosporium betae</i> (ex <i>Phoma betae</i>) / 2026	Phoma root rot, Leaf spot	Nb (ex Pb)
<i>Peronospora schachtii</i> (ex <i>Peronospora farinosa</i> f.sp. <i>betae</i>) / 2026	Downy mildew	Ps (ex Pfb)
<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
Viruses		
Cauliflower mosaic virus	Cauliflower mosaic	CaMV
Turnip mosaic virus	Turnip mosaic	TuMV
Bacteria		
<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
Fungi		
<i>Albugo candida</i> (ex <i>Albugo macrospora</i>) / 2026	White rust	Ac (ex 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
³ <i>Hyaloperonospora brassicae</i>	Downy mildew	Hb
<i>Mycosphaerella brassicicola</i>	Ring spot	Mb
⁴ <i>Leptosphaeria maculans</i>	Black leg	Lm
<i>Plasmodiophora brassicae</i>	Clubroot	Pb
<i>Verticillium albo-atrum</i>	Verticillium wilt	Va
<i>Verticillium dahliae</i>	Verticillium wilt	Vd
<i>Verticillium longisporum</i>	Verticillium wilt	Vl
Insects		
<i>Brevicoryne brassicae</i>	Cabbage aphid	Bb
<i>Plutella xylostella</i>	Diamond back moth	Px
<i>Thrips tabaci</i>	Thrips	Tt

² Both old names *Pleospora betae* and *Pleospora bjoerlingii* are still in use. The current name has changed from *Phoma betae* to *Neocamarosporium betae*

³ *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.

⁴ Anamorph: *Phoma lingam*

Recommended Codes for Pest Organisms in Vegetable Crops
November 2022

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		
⁵ <i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
⁶ <i>Xanthomonas</i> spp (ex <i>Xanthomonas campestris</i> pv. <i>vesicatoria</i>) / 2026	Bacterial spot	X spp (ex Xcv)
Fungi		
<i>Colletotrichum acutatum</i>	Anthracnose	Ca
<i>Colletotrichum truncatum</i> (ex <i>Colletotrichum capsici</i>) / 2026	Anthracnose	Ct (ex Cc)
<i>Colletotrichum gloeosporioides</i>	Anthracnose	Cg
<i>Fusarium oxysporum</i> f.sp. <i>capsici</i>	Fusarium wilt	Foc
⁷ <i>Leveillula taurica</i>	Powdery mildew	Lt
<i>Phytophthora capsici</i>	Phytophthora crown and root rot	Pc
Nematodes		
<i>Meloidogyne arenaria</i>	Root-knot	Ma
<i>Meloidogyne incognita</i>	Root-knot	Mi
<i>Meloidogyne javanica</i>	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

⁵ *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al.*, 2016.

⁶ 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-

⁷ anamorph: *Oidiopsis sicula*

**Recommended Codes for Pest Organisms in Vegetable Crops
November 2022**

Squash leaf curl virus	Squash leaf curl	SLCV
Watermelon mosaic virus	Watermelon mosaic	WMV
Zucchini yellow mosaic virus	Zucchini yellow mosaic	ZYMV
Fungi		
<i>Colletotrichum orbiculare</i>	Anthrachnose	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
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		
<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
Insects		
<i>Aphis gossypii</i>	Cotton aphid	Ag

10. Cucumis sativus (Cucumber)

Scientific name	English common name	Code
Viruses		
Beet pseudoyellows virus	Beet pseudoyellows	BPYV
Cucurbit aphid-borne yellows virus	Cucurbit aphid-borne yellows	CABYV
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

**Recommended Codes for Pest Organisms in Vegetable Crops
November 2022**

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
Bacteria		
<i>Erwinia tracheiphila</i>	Bacterial wilt	Et
<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Angular leaf spot	PsI
Fungi		
<i>Cladosporium cucumerinum</i>	Scab and gummosis	Ccu
<i>Colletotrichum orbiculare</i>	Anthrachnose	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>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
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	Tomato leaf curl New Delhi	ToLCNDV
Watermelon mosaic virus	Watermelon mosaic	WMV
Moroccan watermelon mosaic virus	Moroccan watermelon mosaic	MWMV
Zucchini yellow mosaic virus	Zucchini yellows	ZYMV
Fungi		
<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>Diaporthe sclerotioides</i> (ex <i>Phomopsis sclerotioides</i>) / 2026	Black root rot	Ds (ex 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

12. Daucus carota var. sativa (Carrot)

Scientific name	English common name	Code
-----------------	---------------------	------

Recommended Codes for Pest Organisms in Vegetable Crops
November 2022

Bacteria		
<i>Xanthomonas hortorum</i> pv. <i>carotae</i>	Bacterial leaf blight	Xhc
Fungi		
<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>Globisporangium ultimum</i> (ex <i>Pythium ultimum</i>) / 2026	Cavity spot	Gu (ex Pu)
<i>Globisporangium violae</i> (ex <i>Pythium violae</i>) / 2026	Cavity spot	Gv (ex Pv)
Insects		
<i>Psila rosae</i>	Carrot fly	Pr
Nematodes		
<i>Meloidogyne incognita</i>	Root-knot	Mi
<i>Meloidogyne javanica</i>	Root-knot	Mj
Phytoplasmas		
<i>Aster yellows</i>	Aster yellows	Ay
13. <i>Diplotaxis tenuifolia</i> (Wild rocket)		
Scientific name	English common name	Code
Fungi		
<i>Hyaloperonospora parasitica</i>	Downy mildew	Hp
14. <i>Eruca vesicaria</i> subsp. <i>sativa</i> (Arugula)		
Scientific name	English common name	Code
Fungi		
<i>Hyaloperonospora parasitica</i>	Downy mildew	Hp
15. <i>Lactuca sativa</i> (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		
<i>Pseudomonas cichorii</i>	Bacterial rot	Pc

**Recommended Codes for Pest Organisms in Vegetable Crops
November 2022**

⁸ <i>Rhizorhapis suberifaciens</i> (ex <i>Sphingomonas suberifaciens</i>) / 2025	Corky root	Rs (ex Ss)
<i>Xanthomonas axonopodis</i> pv. <i>vitians</i> (ex <i>Xanthomonas campestris</i> pv. <i>vitians</i>) / 2026	Bacterial spot	Xav (ex Xcv)
Fungi		
<i>Bremia lactucae</i>	Downy mildew	Bl
<i>Fusarium oxysporum</i> f.sp. <i>lactucae</i>	Fusarium wilt	Fol
<i>Microdochium panattonianum</i>	Anthraco nose	Mpa
Insects		
<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

16. *Lagenaria siceraria* (Bottle gourd)

Scientific name	English common name	Code
Viruses		
Cucumber green mottle mosaic virus	Cucumber green mottle	CGMMV
Fungi		
<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

17. *Luffa acutangula* (Ridge gourd)

Scientific name	English common name	Code
Viruses		
Tomato leaf curl New Delhi virus	Tomato Leaf Curl New Delhi	ToLCNDV
Bacteria		
⁹ <i>Ralstonia solanacearum</i>	Bacterial wilt	Rs

18. *Luffa cylindrica* (Sponge gourd)

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

⁸ 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/ijms.0.058909-0>, <http://apsjournals.apsnet.org/doi/pdf/10.1094/PDIS-09-14-0953-FE>).

⁹ *Ralstonia solanacearum* species complex comprises of three different species see Prior et al., 2016.

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

¹⁰ <i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
19. Momordica charantia (Bittergourd)		
Scientific name	English common name	Code
Viruses		
Cucurbit aphid-borne yellows virus	Cucurbit aphid-borne yellows	CABYV
Cucumber mosaic virus	Cucumber mosaic	CMV
Papaya ring spot virus	Papaya ringspot	PRSV
Tomato leaf curl New Delhi virus	Tomato Leaf Curl New Delhi	ToLCNDV
Zucchini yellow mosaic virus	Yellow mosaic	ZYMV
Fungi		
<i>Podosphaera xanthii</i>	Powdery Mildew	Px
20. Ocimum basilicum (Basil)		
Scientific name	English common name	Code
Fungi		
<i>Fusarium oxysporum f.sp. basilici</i> (ex <i>Fusarium oxysporum f.sp. basilicum</i>) /2026	Fusarium wilt	Fob
<i>Peronospora belbahrii</i>	Downy mildew	Pb
21. Petroselinum crispum (Parsley)		
Scientific name	English common name	Code
Fungi		
<i>Plasmopara petroselini</i>	Downy mildew	Pp
<i>Septoria petroselini</i>	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 curly top virus (ex Beet mild curly top virus) / 2026	Beet curly top	BCTV (ex BMCTV)
Beet curly top virus (ex Beet severe curly top virus) / 2026	Beet curly top	BCTV (ex BSCTV)
Bean yellow disorder virus	Bean yellow disorder	BnYDV
Bean yellow mosaic virus	Bean yellow mosaic	BYMV
Southern bean mosaic virus	Bean southern	SBMV
Cucumber mosaic virus	Cucumber mosaic	CMV
Bacteria		
<i>Pseudomonas savastanoi pv. phaseolicola</i>	Halo blight	Psp
<i>Pseudomonas syringae pv. syringae</i>	Bacterial brown spot	Pss

**Recommended Codes for Pest Organisms in Vegetable Crops
April 2024**

¹¹ <i>Xanthomonas axonopodis</i> pv. <i>phaseoli</i>	Common or fuscous blight	Xap
Fungi		
<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

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		
<i>Pseudomonas syringae</i> pv. <i>pisi</i>	Bacterial blight	Psp
Fungi		
<i>Aphanomyces euteiches</i>	Aphanomyces root rot	Ae
<i>Didymella pisi</i> (ex <i>Ascochyta pisi</i>) / 2026	Ascochyta leaf and pod spot	Dp (ex Aps)
<i>Didymella pinodella</i> (ex <i>Ascochyta pinodella</i>) / 2026	Leaf spot and foot rot	Dpn (ex 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>Neocosmospora solani</i> (ex <i>Fusarium solani</i>) / 2026	Fusarium root rot	Ns (ex Fs)
<i>Didymella pinodes</i> (ex <i>Mycosphaerella pinodes</i>) / 2026	Ascochyta blight	Dps (ex Mp)
<i>Peronospora viciae</i>	Downy mildew	Pv

¹⁰ *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al.*, 2016

¹¹ Although *Xanthomonas axonopodis* pv. *phaseoli* and *X. fuscans* subsp. *fuscans* (Xff) (formerly *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.

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

24. Raphanus sativus (Radish)

Scientific name	English common name	Code
Viruses		
Turnip mosaic virus	Turnip mosaic	TuMV
Bacteria		
<i>Pseudomonas syringae</i> pv. <i>maculicola</i>	Bacterial leaf spot, Peppery leaf spot	Psm
Fungi		
<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

25. Solanum integrifolium (Eggplant rootstock)

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

26.¹²Solanum 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
¹³ Tomato marchitez virus	Tomato marchitez	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

12 Some of the codes also apply for tomato rootstocks.

13 Other scientific name: Tomato apex necrosis virus (ToANV) (ICTV)

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

Tomato yellow leaf curl virus	Tomato yellow leaf curl	TYLCV ¹⁴
Bacteria		
<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
¹⁵ <i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
¹⁶ <i>Xanthomonas</i> spp (ex <i>Xanthomonas campestris</i> pv. <i>Vesicatoria</i>) / 2026	Bacterial spot	X spp (ex Xcv)
Fungi		
<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
¹⁷ <i>Passalora fulva</i>	Leaf mold	Pf
<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
¹⁸ <i>Leveillula taurica</i>	Powdery mildew	Lt
<i>Pseudoidium neolycopersici</i> (ex <i>Oidium neolycopersici</i>) / 2026	Powdery mildew	Pn (ex On)
<i>Phytophthora infestans</i>	Late blight	Pi
<i>Pseudopyrenochaeta lycopersici</i> (ex <i>Pyrenochaeta lycopersici</i>) / 2026	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
Nematodes		
<i>Meloidogyne arenaria</i>	Root-knot	Ma
<i>Meloidogyne incognita</i>	Root-knot	Mi
<i>Meloidogyne javanica</i>	Root-knot	Mj
27. <i>Solanum melongena</i> (Eggplant/Aubergine)		
Scientific name	English common name	Code
Viruses		
Tomato mosaic virus	Tomato mosaic	ToMV
Tomato spotted wilt virus	Tomato spotted wilt	TSWV
Bacteria		
¹⁹ <i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
Fungi		

¹⁴ Explanatory note to clarify the situation of TYLCV and TYLCD associated viruses

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

¹⁶ 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.

¹⁷ 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).

¹⁸ Anamorph: *Oidiopsis sicula*

¹⁹ *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al.*, 2016.

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

<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

Nematodes

<i>Meloidogyne incognita</i>	Root-knot	Mi
------------------------------	-----------	----

28. *Solanum torvum* (Eggplant rootstock)

Scientific name	English common name	Code
-----------------	---------------------	------

Bacteria

²⁰ <i>Ralstonia solanacearum</i>	Bacterial wilt	Rs
---	----------------	----

Fungi

<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

Nematodes

<i>Meloidogyne incognita</i>	Root knot	Mi
²¹ <i>Meloidogyne enterolobii</i>	Root knot	Me
<i>Meloidogyne arenaria</i>	Root knot	Ma
<i>Meloidogyne javanica</i>	Root knot	Mj

29. *Spinacia oleracea* (Spinach)

Scientific name	English common name	Code
-----------------	---------------------	------

Viruses

cucumber mosaic virus	Cucumber mosaic	CMV
-----------------------	-----------------	-----

Fungi

<i>Wilsoniana occidentalis</i> (ex <i>Albugo occidentalis</i>) / 2026	White rust	Wo (ex Ao)
<i>Cladosporium variabile</i>	Leaf spot	Cv
²² <i>Colletotrichum dematium</i>	Anthracnose	Cd
<i>Fusarium oxysporum</i> f. sp. <i>spinaciae</i>	Fusarium wilt	Fos
<i>Peronospora effusa</i>	Downy mildew	Pe
²³ <i>Stemphylium botryosum</i> (now <i>Stemphylium beticola</i>) / 2027	Stemphylium leaf spot	Sb
²⁴ <i>Stemphylium vesicarium</i>	Stemphylium leaf spot	Sv
<i>Verticillium dahliae</i>	Verticillium wilt	Vd

Insects

<i>Liriomyza langei</i>	Leaf miner	LI
-------------------------	------------	----

30. *Valerianella locusta* (Corn salad)

²⁰ *Ralstonia solanacearum* species complex comprises of three different species see Prior *et al.*, 2016.

²¹ Other scientific name: *M. mayaguensis*

²² As per *Index Fungorum* this is the correct name for this pathogen, Syn. *Colletotrichum dematium* f. *spinaciae*; *Colletotrichum spinaciae*.

²³ 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.

²⁴ *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).

Recommended Codes for Pest Organisms in Vegetable Crops
April 2024

Scientific name	English common name	Code
Bacteria		
<i>Acidovorax valerianellae</i>	Bacterial spot	Av
Fungi		
<i>Berkeleyomyces basicola</i> (ex <i>Thielaviopsis basicola</i>) /2026	Root rot	Bb (ex Tb)
<i>Peronospora valerianellae</i>	Downy Mildew	Pv

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		
<i>Pantoea stewartii</i> subsp. <i>stewartii</i>	Stewart's wilt	Pst
Fungi		
<i>Bipolaris maydis</i>	Southern corn leaf blight	Bm
<i>Colletotrichum graminicola</i>	Anthracnose 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

International Seed Federation