

Useful References for Diagnosis of Vegetable Diseases

Lindsey J. du Toit, Vegetable Seed Pathologist, Washington State University
(revised July 2015)

General reference on introductory diagnostic methods and principles:

- **Shurtleff, Malcolm C., and Averre, Charles W. III. 1997. **The Plant Disease Clinic and Field Diagnosis of Abiotic Diseases.** APS Press, St. Paul, MN. ISBN # 0-89054-217-1. (Focused on abiotic diseases but includes sections on "An Introduction to Plant Disease Diagnosis", "Diagnosing in the Field", "Diagnosing in the Clinic", "Gathering Information", "The Plant Disease Clinic", etc. Useful appendices such as "Sterilizing Agents", "Culture Media, Formulas, and Procedures", "Mounting and Staining Fungi for Microscopic Identification", "Collection, Preparation, and Mailing of Cultures and Specimens", etc.).

Selected general vegetable disease diagnostic references:

- **Crucifer Diseases. A Practical Guide for Seedsmen, Growers & Agricultural Advisors.** Petoseed Co., Inc., Saticoy, CA. (Tel: 805-647-1188 or 888-222-1272)
- Gabor, B.K., editor. **Onion Diseases. A Practical Guide for Seedsmen, Growers & Agricultural Advisors.** Petoseed Co., Inc., Saticoy, CA. (Tel: 805-647-1188 or 888-222-1272)
- **Tomato Diseases. A Practical Guide for Seedsmen, Growers & Agricultural Advisors.** Petoseed Co., Inc., Saticoy, CA. (Tel: 805-647-1188 or 888-222-1272)
- 1992. **Integrated Pest Management for Cole Crops & Lettuce.** University of California Division of Agriculture & Natural Resources Publication No. 3307, Oakland, CA. ISBN # 0-931876-70-2.
- 1998. **Integrated Pest Management for Tomatoes**, 4th Edition. University of California Division of Agriculture & Natural Resources Publication No. 3274, Oakland, CA. ISBN # 1-879906-732-5.
- Hoffman, M.P., Petzoldt, C.H., and Frodsham, A.C. 1996. **Integrated Pest Management for Onions.** Cornell Cooperative Extension IPM Program Publication No. 119, Ithaca, NY.
- Blancard, D., Lot, H., and Maisonneuve, B. 2006. **A Colour Atlas of Diseases of Lettuce and Related Salad Crops.** Observation, Biology and Control. Manson Publishing, London. ISBN # 1-84076-050-8.
- Blancard, D., Lecoq, H., and Pitrot, M. 2005. **A Colour Atlas of Cucurbit Diseases. Observation, Identification & Control.** Manson Publishing, London. ISBN # 1-874545-15-4.
- Blancard, D. 2012. **A Colour Handbook. Tomato Diseases. Identification, Biology & Control. 2nd Edition.** Elsevier/Academic Press, New York. ISBN # 978-0-12-387737-6.
- Donald, C., Endersby, N., Ridland, P., Porter, I., Lawrence, J., and Ransom, L. 2000. **Field Guide to Pests, Diseases, and Disorders of Vegetable Brassicas.** Horticultural Research & Development Corporation, Victoria, Australia. ISBN # 0-7311-4474-0.
- Minchin, S., Editor. 2009. **Handbook of Pests, Diseases, Disorders, and Natural Enemies of Vegetable Brassicas in New Zealand.** Market Access Solutionz Ltd,

Wellington, New Zealand. ISBN 978-0-473-14900-0. (A companion to the CD Rom “Information Guide for integrated pest management in vegetable brassicas”.)

- Howard, R.J., Garland, J.A., and Seaman, W.L. 1994. **Diseases and Pests of Vegetable Crops in Canada. An Illustrated Compendium.** The Canadian Phytopathological Society and the Entomological Society of Canada, Ontario, Canada. ISBN # 0-9691627-4-X. (*This may now be out of print, sadly!*)
- Johnson, D.A. 2007. **Potato Health Management**, 2nd Edition. Plant Health Management Series, APS Press, St. Paul, MN.
- Koike, Steven T., Gladders, P., and Paulus, Albert O. 2007. **Vegetable Diseases. A Color Handbook.** Academic Press. San Diego, CA. ISBN # 0-12-373675-7.
- Sherf, A.F., and MacNab, A.A. 1986. **Vegetable Diseases and Their Control.** John Wiley & Sons, Inc., New York, NY. ISBN # 0-471-05860-2. (*More recent edition in print now*)
- **APS Press compendium series** on diseases of specific crops: <http://www.shopapspress.org/disease-diagnostic-series.html> - Vegetable crops include bean, beet, brassicas, curcubits, umbelliferous crops, onion & garlic, lettuce, pea, pepper, potato, and tomato.
- **CD-Rom of photos of diseases and pests from the APS Press compendium series** on specific crops: <http://www.shopapspress.org/titles-by-category-cd-rom-collection.html>. CD-Roms available on the following vegetable crops: bean, brassicas, onion & garlic, general “Diseases of Vegetables”. Other CD-Roms include “Nutrient Deficiencies & Toxicities”, “Disease of Root & Tuber Crops”, “Diseases of Legumes”, etc.
- **APS Online Image Database.** A subscription-based, online image database with thousands of photos of plant diseases. <https://my.apsnet.org/custom/imageDatabase/Search.aspx>

Selected general vegetable references:

- Maynard, D.N., and Hochmuth, G.J. 1997. **Knott’s Handbook for Vegetable Growers**, 4th Edition. John Wiley & Sons, Inc., New York, NY. ISBN # 0-471-13151-2. (*More recent edition in print.*)
- Bennett, W.F. 1993. **Nutrient Deficiencies & Toxicities in Crop Plants.** APS Press, St. Paul, MN. ISBN # 0-89054-151-5.
- Brewster, J.L. 2008. **Onions and Other Vegetable Alliums**, 2nd Edition. Crop Production Science in Horticulture Series No. 15. CAB International, Cambridge, MA. ISBN # 978-1-84593-399-9.
- Rubatzky, V.E., Quiros, C.F., and Simon, P.W. 1999. **Carrots and Related Vegetable Umbelliferae.** Crop Production Science in Horticulture Series No. 10. CABI Publishing, Wallingford, U.K. ISBN # 0-85199-129-7.
- Etc.

Selected diagnostic references on bacterial, viral, and nematode plant diseases:

- Bridge, J., and Starr, J.L. 2007. **Plant Nematodes of Agricultural Importance. A Color Handbook.** Elsevier/Academic Press, San Diego, CA. ISBN # 978-0-12-373673-4.

- Hull, R. 2002. **Matthew's Plant Virology**, 4th Edition. Elsevier Academic Press, New York, NY. ISBN # 0-12-361160-1.
- Mai, W.F., and Lyon, H.H. 1975. **Pictorial Key to Genera of Plant-Parasitic Nematodes**, 4th Edition, Revised. Cornell University Press, Ithaca, NY.
- Saettler, A.W., Schaad, N.W., and Roth, D.A. 1989. **Detection of Bacteria in Seed and Other Planting Material**. APS Press, St. Paul, MN. ISBN # 0-89054-098-5.
- Schaad, N.W., Jones, J.B., and Chun, W. 2001. **Laboratory Guide for Identification of Plant Pathogenic Bacteria**, 2nd Edition. APS Press, St. Paul, MN. ISBN # 0-89054-263-5.
- Shurtleff, M.C., and Averre, C.W. III. 2000. **Diagnosing Plant Diseases Caused by Nematodes**. APS Press, St. Paul, MN. ISBN # 0-89054-254-6.
- Perry, R.N., and Moens, M. 2013. **Plant Nematology**, 2nd Edition. CABI International, Boston, MA. ISBN # 978-1-78064-151-5 (hardback) or 978-1-78064-153-9 (paperback).

General mycology references (useful if you have access to a microscope):

- Barnett, H.L. and Hunter, B.B. 1998. **Illustrated Genera of Imperfect Fungi**, 4th Edition. APS Press. St. Paul, MN. ISBN # 0-89054-192-2.
- Domsch, K.H., Gams, W., and Anderson, T.-H. 1993. *Compendium of Soil Fungi*. Vol. I & Vol. II. IHW-Verlag, Eching, Germany. ISBN # 3-9803083-8-3.
- Dugan, F. M. 2006. **The Identification of Fungi. An Illustrated Introduction with Keys, Glossary, and Guide to Literature**. APS Press, St. Paul, MN. ISBN # 0-89054-336-4.
- Ellis, M.B. 1971. **Dematiaceous Hyphomycetes**. Commonwealth Mycological Institute, Surrey, England. ISBN # 0-85198-027-9. (CMI is now the International Mycological Institute = IMI).
- Ellis, M.B. 1976. **More Dematiaceous Hyphomycetes**. Commonwealth Mycological Institute, Surrey, England. ISBN # 0-85198-365-0.
These references by Ellis are no longer in print, but are very helpful for identifying fungi that produce naked spores, i.e., spores not enclosed in fruiting bodies, e.g., *Alternaria*, *Stemphylium*, *Ulocladium*, *Fusarium*, *Cercospora*, etc.)
- Farr, D.F., Bills, G.F., Chamuris, G.P., and Rossman, A.Y. 1989. **Fungi on Plants and Plant Products in the United States**. APS Press, St. Paul, MN. ISBN # 0-89054-099-3. (Extensive reference on fungi on individual plant species. More useful website to update the book:
<http://nt.ars.grin.gov/fungaldatabases/fungushost/fungushost.cfm> - search by host, fungus, or any combination.)
- Hanlin, Richard T. 1990. **Illustrated Genera of Ascomycetes. Volume I**. APS Press, St. Paul, MN. ISBN # 0-89054-107-8.
- Hanlin, Richard T. 1998. **Illustrated Genera of Ascomycetes. Volume II**. APS Press, St. Paul, MN. ISBN # 0-89054-198-1.
- Hanlin, Richard T. 1990. **Combined Keys to Illustrated Genera of Ascomycetes Volume I & II**. APS Press, St. Paul, MN. ISBN # 0-89054-199-X.
- Seifert, K., Morgan-Jones, G., Gams, W., and Kendrick, B. 2011. **The Genera of Hyphomycetes**. CBS Biodiversity Series 9, CBS-KNAW Fungal Biodiversity Centre, Utrecht, The Netherlands. ISBN # 978-90-70351-85-4.

- Sutton, B.C. 1980. **The Coelomycetes. Fungi Imperfecti with Pycnidia, Acervuli and Stromata.** Commonwealth Mycological Institute, Surrey, England. ISBN # 0-85198-446-0.
- Ulloa, M., and Hanlin, R.T. 2000. **Illustrated Dictionary of Mycology.** APS Press, St. Paul, MN. ISBN # 0-89054-257-0. (Very useful drawings, photos and descriptions on mycology terms & definitions.)
- Watanabe, Tsuneo. 2010. **Pictorial Atlas of Soil and Seed Fungi. Morphologies of Cultured Fungi and Key to Species, 3rd Edition.** CRC Press, Boca Raton. ISBN # 978-1-4398-0419-3 (hardback).

There are many references on identification of specific groups of fungi, e.g.:

- Belanger, R.R., Bushnell, W.R., Dik, A.J., and Carver, T.L.W. 2002. **The Powdery Mildews. A Comprehensive Treatise.** APS Press, St. Paul, MN. ISBN # 0-89054-291-0.
- Boerema, G.H., de Gruyter, J., Noordeloos, M.E., and Hamers, M.E.C. 2004. CABI Publishing, Cambridge, MA. ISBN # 0-85199-743-0.
- Cummins, G.B., and Hiratsuka, Y. 2003. **Illustrated Genera of Rust Fungi, 3rd Edition.** APS Press, St. Paul, MN. ISBN # 0-89054-304-6.
- Leslie, J.F., Summerrell, B.A., and Bullock, S. 2006. **The *Fusarium* Laboratory Manual.** Blackwell Publishing, Ames, IA. ISBN # 0-8138-1919-9.
- Rotem, Joseph. 1994. **The Genus *Alternaria*. Biology, Epidemiology, and Pathogenicity.** APS Press, St. Paul, MN. ISBN # 0-89054-152-3.
- Sneh, B., Burpee, L., and Ogoshi, A. 1991. **Identification of *Rhizoctonia* Species.** APS Press, St. Paul, MN. ISBN # 0-89054-123-X.
- Vanky, K. 2002. **Illustrated Genera of Smut Fungi, 2nd Edition.** APS Press, St. Paul, MN. ISBN # 0-89054-297-X.
- Etc.