



13.1 Slippery skin; deterioration of inner scales on an onion bulb.



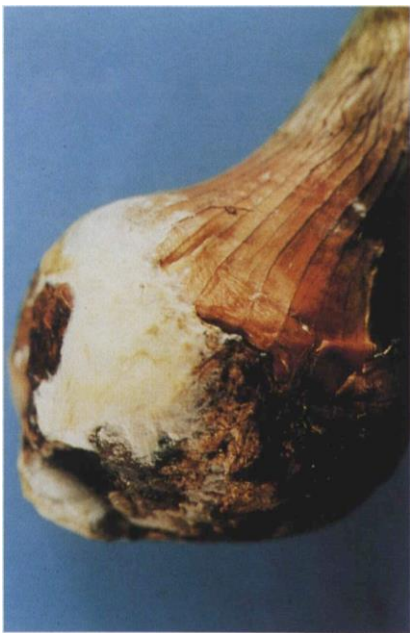
13.2a Soft rot (bacterial); external symptoms (neck decay).



13.2b Soft rot (bacterial); internal symptoms (scale rot).



13.3 Sour skin; scale discoloration on an onion bulb.



13.4 Basal rot; onion bulb with surface growth of *Fusarium oxysporum* f. sp. *cepae*.



13.5a Botrytis leaf blight; grayish white leaf spots usually have a characteristic silver halo.



13.5b Botrytis leaf blight (left); with downy mildew (center); with downy mildew and purple blotch (right).



13.6a Downy mildew; purplish, velvety mat on leaves in early morning.



13.6b Downy mildew; close-up of sporulating lesions on onion leaf.



13.6c Downy mildew; an affected (collapsed, yellowed) onion crop.



13.6d Downy mildew; microscopic view of sporangiophores of *Peronospora destructor*.



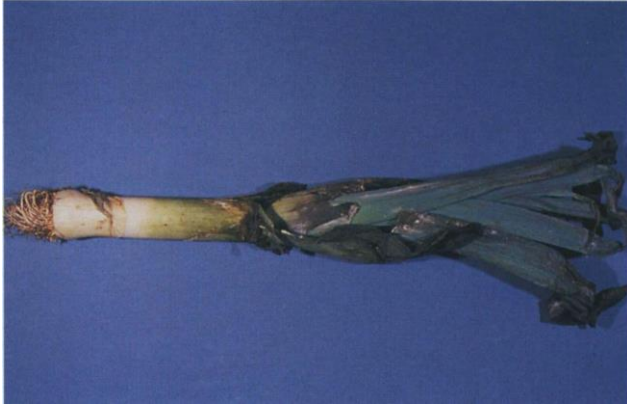
13.7a Neck rot; internal symptoms (decay) on onion bulb.



13.7b Neck rot; external symptoms (decay, sclerotia) on onion bulb.



13.7c Neck rot; sclerotia of *Botrytis* sp. on onion bulb.



13.7d Neck rot; external symptoms (dieback) on leek.



13.8a Pink root; discoloration of onion roots.



13.8b Pink root; foliar dieback of onion.



13.9a Purple blotch; early symptoms on onion leaves.



13.9b Purple blotch; advanced symptoms (large lesions) on onion leaves.



13.10 Smudge; dark lesions on onion bulbs.



13.11a Smut; leaf dieback on young onion plants.



13.11b Smut; elongate pustules on young onion plant.



13.11c Smut; dark pustules on garlic bulbs.



13.12a White rot; yellowing and dieback of garlic plants (foreground).



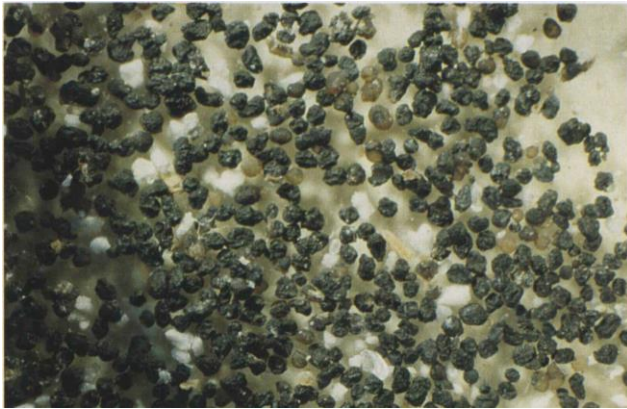
13.12b White rot; grayish white mycelium and black sclerotia at base of onion bulbs.



13.12c White rot; mycelium and sclerotia on garlic bulb.



13.12d White rot; garlic bulb with small black sclerotia on the surface.



13.12e White rot; sclerotia of *Sclerotium cepivorum*.



13.13 Aster yellows; affected onion plants are stunted and yellow.



13.14 Garlic mosaic; chlorotic streaks and yellowing of garlic leaves.



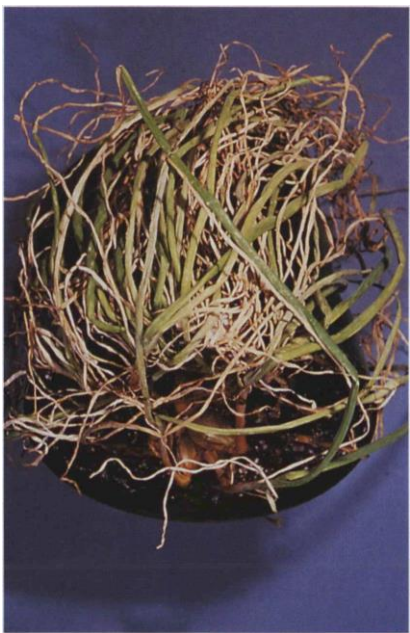
13.15a Herbicide injury; bleaching of an onion leaf caused by oxy- fluorfen.



13.15b Herbicide injury; leaf curling on onion.



13.15c Herbicide injury; leaf yellowing and dieback of onion.



13.16 Ozone injury; severely affected onion plants.



13.17 Sprout inhibitor injury; scale separation of onion bulb from maleic hydrazide.



13.19 Tipburn; an affected onion crop.



13.20 Translucent scale; symptoms on Spanish onion.



13.21 Pelting rain injury; lesions on an onion leaf.



13.23 Root-lesion nematode; yield and size of onion bulbs decrease with increasing numbers of nematodes in soil.



13.24 Stem and bulb nematode; affected onion bulbs are deformed, and leaves are short and senesce early.



13.25 Onion bulb fly; adult; length \pm 8 mm.



13.26a Onion maggot; larvae on an onion bulb.



13.26b Onion maggot; adult fly, male (left), and female; length \pm 6 mm.



13.26c Onion maggot; larvae; length 6-8 mm at maturity.



13.26d Onion maggot; pupae; length 5-7 mm.



13.26e Onion maggot; infested (left) and healthy onion plants.



14.2a *Itersonilia* canker; lesion on the shoulder of a parsnip root.