**Alternaria Brown Spot**

**Scientific Name:** Alternaria alternata  
**Leaf Symptoms:** Initial small brown lesions develop yellow halos. Lesions expand into circular or irregular shapes that can cover a large portion of the leaves. Badly affected leaves fall off.  
**Fruit Symptoms:** Start as small dark specks and develop into either large black lesions or corky eruptions. The eruptions can fall off leaving craters on the fruit surface. Badly affected fruit drops.  
**Varieties Affected:** Minneola tangelos, Dancy tangerines, Murcotts, Orlando tangelos, Novas, Lees, Sunburst  
**Management:** Clean nursery trees; good air drainage at planting site; prune in March; do not hedge severely; use moderately vigorous rootstock; do not over-fertilize or water; no overhead irrigation; 1st spray application spring flush ¼ - ½ full expansion; 2nd shortly after petal fall; remaining sprays are to maintain a protective coating on fruit; in dry weather, sprays can be infrequent, but if wet, applications can be as often as every 10 days in April and May; in June, 2 applications are likely; for more information on application timing, consult the Alter Rater: http://www.crec.ifas.ufl.edu/crec_websites/fungal/dmodel.htm

**Citrus Scab**

**Scientific Name:** Elsinoë fawcettii  
**Leaf Symptoms:** Protruding lesions on leaves, especially on Temple with a tan-to-gray pustule at the tip.  
**Fruit Symptoms:** Start with slightly raised pink-brown lesions which develop into warty or corky protuberances that can crack. The color changes to yellowish brown to dark gray.  
**Varieties Affected:** Temples, Grapefruit, Murcotts, Tangelos and some other Tangerine hybrids  
**Management:** Mainly necessary for fresh fruit; Clean nursery trees; prune out heavily infected sections of tree; use moderately vigorous rootstock; no over-head irrigation; fungus can infect with only 3-4 hours of leaf wetness and new spores are produced in 1-2 hours of wetness; in badly affected groves; 3 spray applications are generally needed: 1. ¼ expansion spring flush; 2. petal fall; and 3. 3 weeks later; groves with little disease can skip 1st application; fruit become resistant to disease in May; for pesticide recommendations and rates, consult pest management guide

**Scientific Name:** Mycosphaerella citri  
**Leaf Symptoms:** Initial yellow mottle pattern develops into reddish-brown blisters with yellow halos on the underside of the leaf. As the leaf ages, the lesions become darker brown with a greasy look. The yellow disappears leaving the brown lesions and badly affected leaves drop.  
**Fruit Symptoms:** Symptoms appear as specks on rind between oil glands. Especially noticeable on grapefruit. Lesions are initially pink but become brown or black 3-6 months after infection and may coalesce, forming pink, sunken areas.  
**Varieties Affected:** All citrus, but especially grapefruit, ‘Pineapples’, ‘Hamlins’ and tangelos.  
**Processed Fruit Management:** Minimize leaf litter; sprays are aimed at fungal growth on leaves and fruit.  
- **Valencias:** single oil/oil+copper application mid May-June; a second application may be needed if grove was heavily infested previous season  
- **Early-mid season oranges and grapefruit:** 2 applications; 1st spray mid-May to June; 2nd application shortly after major summer flush expanded in July  
**Fresh Fruit Management:** Minimize leaf litter; Rind blotch-same 2 spray timings as above; if disease pressure high previous year, potentially need 3rd application in August; oil alone not most effective for rind blotch; consult citrus pest management guide for further fungicide options and rates http://www.crec.ifas.ufl.edu/extension/pest/index.htm

**Scientific Name:** Diaporthe citri  
**Leaf Symptoms:** Early symptoms are small reddish-brown discrete spots that are surrounded by yellow halos. Later, the halos disappear but the raised pustules remain. The leaf surface feels like sandpaper.  
**Fruit Symptoms:** If infected when fruit small, lesions can cover most of the fruit. The lesions are reddish-brown and rough. If infected later in the season, the lesions are small and discrete.  
**Varieties Affected:** All citrus; grapefruit and lemons are most susceptible.  
**Management:** Needs 10-24 hours of leaf wetness, any practice that promotes drying is helpful; minimize dead wood  
- **Oranges and tangerines:** 1st spray normally mid-late April: 1-2 applications at 21-day intervals sufficient unless a lot of dead wood  
- **Grapefruit:** susceptible from fruit set to 3 inches diameter (late June to July), start spray applications when fruit is ½ - ¾" diameter; continue at three-week intervals on fresh market fruit; to determine whether copper residues are sufficient for disease control consult copper model; early June spray can also be 1st Greasy Spot spray  
**Copper Model:** For spray timings based on residue levels consult http://www.crec.ifas.ufl.edu/crec_websites/fungal/dmodel.htm