

Disease-Resistant Vegetable Varieties for the NC Piedmont

A healthy vegetable garden begins long before you put a seed in the ground -- with your choice of varieties (cultivars)! Disease resistance is particularly important in our warm, humid climate. Disease-resistant plants will hold out longer and suffer less damage from particular diseases than their non-resistant siblings. This handout has general tips on vegetable variety selection, and a list of disease-resistant varieties for several popular crops.

What is a variety (cultivar)? : Almost all vegetable crops are technically cultivars, or “cultivated varieties.” These are strains of plants, created through plant breeding to obtain specific characteristics. Plant breeders create varieties using selection (choosing plants with desired characteristics to harvest seed for the next generation) and crossing or hybridization (cross-pollinating two distinct parent lines to obtain several desired traits, such as yield and disease resistance). Hybrid varieties often have good vigor and disease resistance, but gardeners must purchase seed each year to ensure that the plants have the desired traits from both parent lines.

Characteristics to consider: When selecting varieties, you may wish to consider:

- Adaptation to local climate and soil types
 - Growth habit (e.g., bush vs. pole beans)
 - Yield
 - Earliness
 - Fruit qualities (size, color, taste, shelf life)
 - Resistance to diseases and pests
- For Brassicas and lettuce: Resistance to bolting (premature flowering) at higher temperatures

Selecting Disease-Resistant Varieties

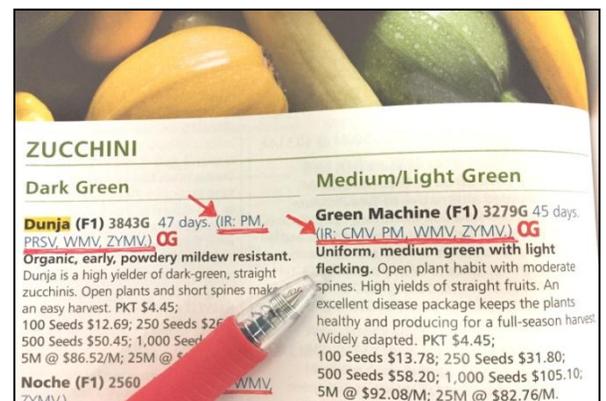
1) Know your enemy: Focus on finding resistant varieties for diseases you’ve had in your garden, or that are common in your region. Good resources for finding out what’s causing symptoms on your plants include:

- Extension Plant Pathology: Vegetables (NCSU): <https://tinyurl.com/PlantPathVeggies>. (The page for each vegetable has a list of disease factsheets).
- Insects and Diseases of Vegetables & Fruits (Clemson): <https://tinyurl.com/VegInsectsDiseases>. See especially the factsheets on diseases of [Brassicas](#), [Cucurbits](#), [tomatoes](#), and [beans](#).
- The NCSU Plant Disease & Insect Clinic (<https://tinyurl.com/NCSU-PDIC>) accepts photos for diagnosis free of charge. They can also analyze plant/soil samples and provide a more definitive diagnosis for a fee. For both services, click on ‘How to Submit a Sample,’ then ‘Electronic Submission Form.’ Do not email photos.

2) Identify available resistances: There are several resources that list resistant crop varieties:

- Crop-specific info from NCSU and Clemson (above).
- Resistant Varieties Tables (Cornell): <http://tinyurl.com/ResistantVarietiesTables>.
- Seed catalogs.

3) Crack the codes: Many seed company catalogs and websites list ‘disease resistance’ codes after variety names (right). Check the front or back of your seed catalog for a list of codes. On websites, scroll down to detailed information for each variety.



Seed catalog excerpt with ‘resistance codes’ underlined. For example, the ‘Green Machine’ squash has intermediate resistance to powdery mildew (PM) and to cucumber, watermelon, and zucchini yellows mosaic viruses (CMV, WMV, ZYMV).

Examples of Disease-Resistant Varieties

Crop	Selected Resistances	Recommended Varieties	Notes
Beans (Legume)	Anthraco nose (A)	Blue Lake (BMV)	Pole green beans
	Bacterial Brown Spot (BBS)	Caprice (A, BBS, BMV, CB, HB)	Bush green beans
	Bean Mosaic Virus (BMV)	Contender, Provider (BMV, PM)	Bush green beans
	Common Blight (CB)	Goldmine (BMV, HB)	Bush yellow beans
	Halo Blight (HB)	Jade (BBS, BMV, R)	Bush green beans
	Powdery Mildew (PM)	Kentucky Wonder (R)	Pole green beans
	Rust (R)		
Broccoli (Brassica)	Bacterial Head Rot (BHR)	Arcadia (BSR, BR)	Cold tolerant; best for fall planting
	Bacterial Soft Rot (BSR)	Everest (BHR, DM)	Fast-maturing
	Black Rot (BR)	Green Comet (DM, HT)	Heat tolerant; best for spring planting
	Heat tolerant/Bolt resistant (HT)	Green Valiant (BHR)	Performs well in spring and fall
	Downy Mildew (DM)	Marathon (BR, DM)	Cold tolerant; best for fall planting
		Premium Crop (DM, HT)	Heat tolerant; best for spring planting
Summer Squash/ Zucchini (Cucurbit)	Powdery Mildew (PM)	Dunja (PM, WMV, ZYMV)	Zucchini
	Mosaic Viruses:	Gold Star (PM, CMV)	Yellow crookneck
	Cucumber (CMV)	Golden Glory (PM, WMV, ZYMV)	Yellow straightneck
	Watermelon (WMV)	Green Machine (PM, CMV, WMV, ZYMV)	Zucchini
	Zucchini Yellows (ZYMV)	Spineless Perfection (PM, WMV, ZYMV)	Zucchini
Tomatoes (Solan- aceae)	Foliar Diseases:	Big Beef (EB, F12, N, V)	I, slicing tomato
	Early Blight (EB)	Celebrity (F12, N, V)	ISI, slicing tomato
	Late blight (LB)	Crista Hybrid (TSWV, F123, V)	D, slicing tomato
	Septoria leaf spot (S)	Granadero (TSWV, F12, N, V)	I, plum tomato
	Viral Disease: Tomato spotted wilt virus (TSWV)	Jasper Hybrid (EB, LB, S, F12)	I, cherry tomato
	Root Diseases:	Juliet (EB, LB)	I, plum tomato
	Fusarium wilt (F1, F2, F3)	Mountain Magic Hybrid (EB, LB, F12, V)	ISI, cherry tomato
	Root-knot nematode (N)	Mountain Merit (EB, LB, TSWV, F123, N, V)	D, slicing tomato
	Verticillium wilt (V)	Mountain Pride (F12, V)	D, slicing tomato
	<i>Growth habit notes:</i>	Park's Whopper (F12, N, V)	I, slicing tomato
	<i>D = Determinate</i>	Plum Regal Hybrid (EB, LB, F12, V)	D, plum tomato
	<i>I = Indeterminate</i>	Top Gun Hybrid (TSWV, F123, V)	D, slicing tomato
	<i>ISI = Indeterminate, short internodes</i>	Verona (EB, F1, V)	I, plum tomato

References: Donald, P. & Jett, L. 2000. Disease Prevention in the Home Vegetable Garden. U of MO. <https://tinyurl.com/DiseasePreventionHG>. • Insects and Diseases of Vegetables & Fruits. Clemson University. <https://tinyurl.com/VegInsectsDiseases>. • Johnny's Selected Seeds, 2018 Catalog. • Kemble, J. (Ed.). 2017. Southeastern Vegetable Crops Handbook 2017. <http://tinyurl.com/SouthVegCrops2017>. • McGrath, M. 2017. Resistant Varieties Tables. Cornell University. <http://tinyurl.com/ResistantVarietiesTables>.

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