THE ORGANIC WAY – PLANT FAMILIES

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Assoc. Editor's note: Consideration of family relationships, particularly between crops and weeds is important for disease and weed management, regardless of production methodology being used. This article is taken with permission from the Vegetable and Small Fruit Gazette, Penn State Horticulture, Vol. 9 #5.

Knowing which family a plant belongs to can be useful in making decisions about crop rotations for managing pests and soil fertility. Plants that are in a family are genetically related, so they share similar characteristics. As an example, members of the Cucurbitaceae, among other shared characteristics, have deeply lobed or divided leaves, separate male and female flowers on each plant (termed "monoecious" plants) with five fused petals, similar fruit types, and tendrils for climbing. Besides having similarities in appearance, plants in the same family often have similar susceptibilities to various problems such as diseases, insects, or nematodes.

In general, it is not recommended that a field be planted with members of the same family in succession to avoid the build-up of shared pests. Some crops should not follow members of other families either because of susceptibility to common pests. For example, strawberries (or other crops in the Rosaceae) should not be planted after members of the Solanaceae (and vice versa) because they are all susceptible to verticillium wilt. Keep in mind that various weeds also belong to these same families, and can also host the same pests. Knowing plant families can also be useful in determining appropriate pesticides to use, when warranted, as effects within families are often similar. This can apply to both wanted effects, and unwanted effects such as phytotoxicity to crop plants from certain pesticides.

Crops can be rotated to manage soil fertility. This is done by including crops in the rotation to improve the fertility status of the soil and rotating among heavy users of certain nutrients. For example, members of the Fabaceae can be grown to add nitrogen to the soil and many members of the Liliaceae are heavy users of potassium.

The table below lists several vegetables, herbs, fruit, cut flowers, cover crops and weeds by plant family. Plant family names can be easily identified because they end in '-ceae'; however, some families also have 'old' names which end in '-ae'. Old names as well as common names are included in the table. Note than some plants are listed in more than one grouping.

Family Name	Aliases	Members		
		Crops	Ornamentals	Weeds
Solanaceae	solanaceous crops; potato, tomato or nightshade family	peppers (bell and chile), tomatoes, potatoes, eggplant, tobacco, tomatillo	petunia, million bells	nightshade, jimsonweed, henbane, groundcherry, buffalobur, horsenettle

Brassicaceae	Cruciferae; brassicas; cole crops; cruciferous crops; mustard family	horseradish, cabbage, cauliflower, broccoli, kohlrabi, kale, Brussels sprouts, turnips, Chinese cabbage, radish, rapeseed, mustard, collards, watercress, pak choi, bok choi, rutabaga	stock, alyssum, candytuft	shepherd's-purse, field pennycress, yellow rocket
Cucurbitaceae	cucurbits; cucumber family; squash family	cucumber, melons, watermelon, summer squash, pumpkin, gourds, winter squash		
Rosaceae	rose family, rosaceous plants	apples, peaches, apricots, nectarines, plums, strawberries, blackberries, raspberries, pears, cherries		multiflora rose
Fabaceae	Leguminosae; leguminous crops; legumes; bean, pea or legume family	beans, peas, lentils, peanut, soybean, edamame, garbanzo bean, fava beans hairy vetch, vetches, alfalfa, clovers, cowpea, birdsfoot trefoil, black medic		various vetches, clovers, black medic
Poaceae	Gramineae; grass family	corn, wheat, barley, oats, sorghum, rice, millet, rye, ryegrass, sorghum-sudangrass, fescue, timothy	ornamental grasses	brome, wild oats, crabgrass, orchardgrass, barnyardgrass, quackgrass, fall panicum, foxtail, Johnsongrass
Polygonaceae	Knotweed family	buckwheat, rhubarb		knotweed, smartweed
Liliaceae	lily family; alliums (for members of the Allium genera)	asparagus, onions, leeks, chives, garlic, shallot	tulips, daffodils, hosta, hyacinth, dayliliy	wild garlic and onions

Lamiaceae	Labiatae; mint family	lavender, basil, marjoram, oregano, rosemary, sage, thyme, mints, catnip	salvia, Molucella (bells-of-Ireland)	mints, catnip, henbit
Ericaceae	heather or blueberry family	blueberries, cranberries	rhododendrons, azalea, heather	
Chenopodiaceae	goosefoot family	spinach, beets, chard, sugar beets		kochia, lambsquarters
Apiaceae	Umbelliferae; carrot family	carrots, parsnips, celery, dill, chervil, cilantro, parsley, caraway, fennel	Trachymeme, Buplerum	poison-hemlock, wild carrot
Asteraceae	sunflower family; aster family, Compositae	sunflowers, lettuce, endive, escarole, radicchio, dandelion, Jerusalem artichoke, artichoke, safflower, chicory, tarragon, chamomile, echinacea, sunflowers	marigold, mums, zinnia, aster, Calendula, cosmos, Rudbeckia, Tithonia, Centaurea, Helichrysum, yarrow, Leucanthemum, echinacea, sunflowers	dandelion, Jerusalem artichoke, chicory, echinacea, thistles, knapweeds, cocklebur, yarrow, ragweeds, goldenrod, groundsel, galinsoga, sunflowers

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