

Horticultural Column from Harriet Wetstone

Incredible croci one day, ice and snow the next, its enough to drive a sane person crazy! I sheltered from this insane weather by watching Monty Don's Gardens of Spain (just google it, it comes right up on utube, in 11 Parts). As with all of Monty Don's Garden documentaries, this is packed with beautiful gardens and lots of interesting information. What is different about Gardens of Spain, though, is the constant reference to Climate Change.

Certainly, climate change means uncertainty, particularly around seasonal change, such as unexpected temperature spikes. I couldn't be surprised by this weekends ice and snow, but what made it feel surreal were the warm temperatures and the popping up of croci and snow drops the week before! Scientific America has an interesting article on how climate change affects gardening. The article noted the changes in designated climate zones for New England, with temperature records from 1991 through 2020 being 5 degrees warmer than between 1976 and 2005, which amounts to one and a half hardiness zones. That's real!

Milder winters mean that some pests and pathogens are more prevalent in our gardens, and that brings me to a new favorite subject: allelopathy. Allelopathy has to do with plants that secrete biochemical substances that have various effects on other plants' growth, survival and reproduction. Mary Tierny and I gave a little talk at Springside this month in which we talked about companion gardening and the role that allelopathic properties can play in determining which plants are or are not good neighbors. There has been more and more research on allelopathy, sometimes resulting in new information, sometimes resulting in information that verifies what traditional gardeners have always known. One example is the traditional companion planting of cucumbers and tomatoes. This works on more than one level -they both have similar sun and soil requirements, and cucumber vines on the ground can help hold moisture for the climbing tomatoes. Research now tells us that there is more: cucumber vines secrete cinnametic acid which can restrict germination of some weed seeds as well as their growth, thus less competition for moisture and nutriments for both the cukes and the tomatoes. But there's more: tomatoes grown in soil with cinnamatic acid do much better than without. The cinnamatic acid reduces fungus infection and blight and results in better and healthier tomato plants.

Another common pairing is basil with tomatoes. Why? Basil is said to be as good as marigolds in repelling whiteflies, aphids and tomato hookworm. Basil's essential oils include citronella, terpineol and eucalyptus, all of which serve as pest repellents and insecticides. (Incidentally, basil also repels mosquitoes, and I have read a suggestion to harvest bouquets of basil to keep on patios and porches to help defend against mosquitos.) In one study, the allelopathic properties of basil were shown to be equal if not more beneficial than fertilizer to the growth of tomato plants with regard to faster germination time, more massive roots, and more tomatoes. WOW!

Sigh, I know I am way ahead of the season. -but this stuff is so interesting! Perhaps more timely information is the allelopathic properties of daffodils! Daffodils have a deadly alkaloid which renders them poisonous. (That's right, don't eat the daffodils). I found a Master's Thesis written for the department of Plant Science at the University of Missouri that studied which plants could be successful follow up crops after daffodils. It turns out that daffodils are very much allelopathic to some plants but not to others. Italian parsley, and alpine strawberries were unaffected by the presence of daffodil residue. However, germination of snapdragon seed was reduced by 60 to 80 percent. Zinnias were

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slow to flower. Basil and Coleus (both in the mint family), however, were the most effected: they had stunted in growth and exhibited chlorosis, or difficulty in producing chlorophyll. I think I'll keep the Daffs out of the vegetable beds!

Thanks to: www.scientificamerican.com; www.thisismygarden.com; [university of Missouri](http://universityofmissouri.edu); www.simplegardenlife.com; www.epicgardening.com

