Peppers - Mild & Saucy to Hot & Spicy

by The Garden Hoe, Lis Friemoth

Wrapping your tastebuds around an unknown pepper, can be a bit like living on the edge. How do you figure out which peppers are the hot ones and which are merely amusing? Getting to know the peppers and how to grow them will help in developing an understanding of what they are. Contributing factors affecting pepper heat include weather conditions, temperatures (day and night), available water, and the genetic composition of each given cultivar. An excellent tool readily available for your use is the Scoville scale. This is a relatively complete guide to help you navigate through the heat levels in the quest for the perfect pepper.

The pepper species, *Capsicum*, is part of the large Solanaceae family which includes potatoes, tomatoes, and eggplants. There are lots of cultivars to choose from given all of the domesticated pepper species - *Capsicum annum, C. chinense, C. frutescens, C. baccatum,* and *C. pubescens.* All species are perennial plants in their native regions but many are successfully grown as productive annuals in the northern climates. One of the great advantages to growing the *Capsicum* species is that many cultivars, in addition to tasty fruit, have outstanding ornamental qualities. They make a great addition to landscape plantings, containers, and work successfully as houseplants. But do beware - even if labeled as ornamental, the fruit still has the potential to impart intense heat. In outdoor spaces, *Capsicum* will tolerate a lot of summer heat, making them perfect for those areas where many other plants may droop during the day. As there are so many different species and cultivars, there will be lots of different plant and fruit forms to choose from. Decide what your goal is in growing these versatile plants and pick something fun and interesting to try that is appropriate to your needs. If fruit production and use is important, be sure to look for those cultivars that will mature early or you may be disappointed when the first frost hits.

Capsicum grows well in regular garden soil loose in texture with good organic content and a pH of around 6.5. When fertilizing, look for a product made for peppers or something light on the nitrogen until after fruit set. (Prior to fruit set, too much nitrogen will increase the vegetative growth while inhibiting fruit set and subsequent production.) After fruit set, you can use a good balanced fertilizer applied according to label and at amounts recommended by your soil test evaluation. Temperatures do affect the development, growth, and production of *Capsicum* and are important throughout the growing season. If starting your own plants from seed, you will want to look at a time frame of about 8 – 10 weeks before that last hard frost - which is usually around the third week of May. When day temperatures reach about 70 degrees F, and night temperatures are above 50 degrees F, if is generally safe to set them out into the garden after the plants have been sufficiently hardened off. As healthy plants grow into the flowering stage, good fruit set will follow if night temperatures stay between 65 and 80 degrees Fahrenheit during flowering. As the plants move to the fruit set stage, production can be disrupted by high nighttime temperatures – anything above 86 degrees F. There have been some studies done as to the effect of temperatures on the capsaicinoids present in the fruit. (Capsaicinoids are one of the chemical groups present in the fruit which cause the varying heat levels.) In some *Capsicum* cultivars, there was almost a doubling of the heat levels present in the fruit when air temperatures were raised by approximately 20 degrees F during the time of fruit ripening. Water is as important to *Capsicum* as it is to any other plant. They need about 2" of water per week to develop good, healthy plant and root structure to produce nice, juicy fruits. If rain is not forthcoming, get out the hose or watering can and give them a good drink.

So where does the heat reside in a pepper? It is a common belief that the most intense heat comes from the seed, but in actuality, the highest concentrations of Capsaicin are found in the placenta or inner lining of the fruit pod. (The seeds often have a bitter taste so removing them will improve the overall flavor quality when using them.) So what do these chemicals found in peppers do to us and why do we like it so much? As the capsaicinoids are released they bind to nerve receptors in the mouth linings, creating a burning sensation (which has to do with Calcium ion exchange between cells). Our bodies then react to that pain with a release of endorphins, ultimately resulting in a sense of happiness, enjoyment, pleasure…take your pick. As consumption of peppers with increasing heat levels occurs, our bodies react to it by increasing tolerance levels - the more heat you eat the more heat you will be able to stand. Extreme levels of capsaicin can be dangerous and toxic – use intense peppers with caution.

In 1912, Wilbur Scoville developed a scale to provide pepper lovers with some guidance on those heat levels. Originally, the peppers were tested for heat on willing participants. Testing has progressed and is now done in labs - with no human mouths scorched in the process, well, except for those who really enjoy that sort of thing. Heat is gauged in Scoville heat units (SHU) and although there are other scales available, the Scoville scale does remain the most commonly used. So where do some of the *Capsicum* cultivars fall on the scale? The lowest is *C. annuum*, 'Bell', at 0 SHU; *C. annuum* 'Serrano' 4,000 SHU; *C. annuum* 'Cayenne' 8,000 SHU; *C. annuum* 'Jalapeno' 25,000 SHU; *C. annuum* 'Thai Hot' 60,000 SHU; *C. frutescens* 'Tabasco' 120,000 SHU; *C. chinense* 'Red Habanero' 150,000 SHU; and *C. chinense* 'Orange Habanero' 210,000 SHU. What can your mouth handle? I leave that decision up to you.