Over the Garden Fence

Starting Seeds Indoors

By Brian David (Mariposa Master Gardener)

Starting garden seeds indoors can result in a high percentage of seeds reaching maturity, save money, extend growing season, enable successive plantings, and provide hand-crafted gifts for your friends and family. Gardeners usually plant cultivars –– seed varieties cultivated through selective breeding.

There are three types of seed cultivars:

1. GMO's are genetically engineered (GE) seeds primarily sold to commercial growers for commodities like –– corn, wheat, and soybean.
2. Hybrid (F-1) seeds are bred for qualities in texture, color, flavor or disease resistance, which is indicated by the letters VFF or VF1 in a seed catalogue, or F1 on the seed packet.
3. Heirloom seeds are open pollinated (OP) and reproduce the genetic qualities of the parent plant. Heirloom seeds have been handed down through generations of people prior to World War II.

When initially planted, the seed is nutritionally self-sufficient because the embryo contains essential proteins, fats, and carbohydrates. Providing the right temperature, water, light and oxygen, seeds will produce a root, stem and leaves, called the cotyledon. When the second set of leaves emerge,

referred to as true leaves, you can give seedlings compost tea (liquid from soaking compost in water), or a liquid fertilizer diluted one-fourth to one-half the fertilizer's normal strength.

Growing seed mediums should enhance interactions between temperatures, water, air (oxygen), and light. Gardeners use assorted coverings to start seeds indoors including: sand, spun wool, peat moss, sterilized soil, perlite, vermiculite, or cotton. Some commercial growers use a mix of half peat moss to half vermiculite.

It is important to have a sterile growing material to protect seeds from disease. Damping off is the most common plight of seeds started indoors. Damping off is caused by the pathogenic fungi, Rhizoctonia and Fusarium. Outside growth mediums like, soil or sand should be sterilized. Sterilize the soil or sand by spreading it 4 inches deep on a pan, cover the pan with aluminum foil, set the oven to 212 degrees. Once the material reaches 180 degrees (you can measure the temperature with a meat or candy thermometer) leave the 180-degree soil/sand in the oven for 30 minutes. Remove your planting material and allow it to cool.

Containers from cardboard egg-cartons to rubberized seeding trays will hold seed starting materials. If reusing containers, submerge them in a ten percent bleach solution for 30 minutes. Clean and completely dry the containers. Individual container dividers prevent roots from intertwining. A hole in the bottom provides a way to wick up water or drain excess moisture.

Temperatures around seventy degrees ensure most cultivar seeds will be warm enough to germinate indoors. You may achieve this temperature on top of a refrigerator, or from a grow mat.

Germinating seeds must stay moist; not soggy, and not dry. When moist seeds dry out, they stop germinating. Mist with a spray bottle or wick up water from a bottom tray. If wicking be sure the water is being taken up into the soil and not soaking the bottom seed bed.

Seeds may emerge as seedlings in a south facing window with full sun, but if there is no overhead lighting they often come up spindly bending toward the light. Outside a green house or a cold frame, healthy seedlings usually need direct artificial light. Three to four T-5, high output (HO) florescent lights, in a compatible fixture suspended by a chain several inches above the soil's surface,12-16 hours a day allows you to adjust the light as the seedlings grow.

The key to starting seeds indoors is harmonizing the five growth factors:

1. Porous medium
2. Adequate temperature
3. Adequate light
4. Adequate water and
5. Adequate oxygen

Growing plants from seed indoors is delicate work requiring experimentation and some failures, but this discipline will revolutionize your gardening.

For further gardening information and event announcements please refer to the Mariposa Master Gardener website (http://cemariposa.ucanr.edu) and Facebook page (Mariposa Master Gardeners). UC Master Gardeners staff the Helpline desk and phone Helpline serving Mariposa County, including Greeley Hill, Coulterville and Lake Don Pedro Helpline hours are Tuesday 9 am to noon and Thursday 2 pm to 5 pm. Phone: 209-966-7078; Email: mgmariposa@ucdavis.edu)