For Release January 20, 2019

Seeds Are Living Organisms

AGRI-VIEWS

by Chuck Otte, Geary County Extension Agent

I regularly receive questions from gardeners who have stumbled across seed packets from last year, two years ago or an unknown number of years ago. The question that will be asked sometime during the conversation is, "are these seeds still good?"

I'll bet that most all of you have planted some kind of seed, even just one, at some time or another. They may be big or tiny, all sorts of shapes and colors and usually hard. A very inanimate looking thing. It's a total leap of faith to place something like that in the soil and actually think that it will turn into something other than a decayed version of what it was when you planted it. But the miracle of a seed germinating and growing is absolutely amazing!

As a seed develops on a plant it goes from being a soft mushy thing to a hard firm seed as it approaches what we call physiological maturity and then dries down to it's final form. Moisture content of seeds is usually 7 to 12% moisture. At that time it is a dormant entity but it is still alive, from a biological point of view. A seed is, in reality, a miniature plant, the embryo if you will, in an arrested state of development.

It is a mature ovary, to put it in mammalian terms. It contains a built in food supply. In addition to the aforementioned water it contains protein, carbohydrates, and fats. It also carries on respiration. Seeds very slowly use up food reserves, take in oxygen and give off carbon dioxide while in this resting state. While some plants have seeds that can last for over a century and still germinate, most seeds will only live, stay viable, for a few years, often less.

Longevity of seeds depends on species of plant, of course, quality of the seed going into storage and then storage conditions. Larger seeds often have slightly longer storage lives, but tiny seeds can also survive for long periods of time. In a university study that was started in the 1800s, the plant with the longest storage life under field conditions was a plant known as common mullein. After 100 years roughly 10% of the seeds still germinated. Mullein seeds are tiny so bigger isn't always better!

If seeds are placed in airtight packages, or oxygen limiting packages and then stored under cool conditions, their life can be extended quite a bit. Seed banks, where scientifically valuable seed collections are maintained, often store seed at temperatures well below zero. As expected then, seeds stored under warm or even hot conditions tend to lose viability, the ability to sprout and grow, much more quickly. Which gets us back to how I started this column.

When people ask me if held over seed is still good I ask three questions. What plant is it from, how long have you had it, and where was it kept? All too often gardeners wind up tossing their partially used garden seeds somewhere in the garage after they get through planting. Unless your garage is far different than mine, in the middle of summer it can be over 100 degrees in there. This will greatly shorten the life of the seeds. Sometimes we think a partial packet of seed was used last year, but looking at the date on the back of the packet will often show it's been longer than a year! Lastly, some seeds just have short storage lives. Plants in the carrot family, including parsnips and parsley, just don't last over a year.

My advice to gardeners is to discard those old partially used seed packets. If it's a large seeded species from last year, okay, it'll probably be fine. But know that storing seed over a year will lower germination rates. New seed, for most gardens, isn't going to be that expensive, so toss the old and get yourself some fresh seed!

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