

# Container intercropping yields

Growing different species of food crops and plants together is not a new concept. Indigenous peoples of the Americas have been cultivating corn, beans, and squash, commonly known as the Three Sisters, together for thousands of years.

The structural support of the tall corn, climbing nature of the beans, and ground cover provided by the sprawling squash plants benefited each other and all were better off

for being grown in close association with one another. More recently, plant science revealed an additional benefit: Beans are a legume species and can fix atmospheric nitrogen into the soil to feed their plant neighbors.

## What does the science say?

Many people have absorbed bits and pieces of heritage gardening wisdom from a grandparent or neighbor over the years. For

example, a seasoned gardener might recommend growing a certain herb alongside a certain vegetable to ward off a particular pest. Many of these practices remain untested in an empirical sense, but may be true for specific soils, climates, and plant cultivars in specific conditions.

Today, plant scientists around the world are actively studying the dynamics of inter-plant relationships and working to characterize the best



# blooms and bumper crops

matches. While the science is still out on whether certain plants “like” or “hate” certain others, in many cases, there are clear advantages to intercropping vegetable and ornamental plants. Plants with complementary characteristics make the best partners.

Intercropping is becoming more popular in conventional agriculture. The principle of assembling complementary plant communities to enhance production is also present in the design of plant guilds, plant communities that grow and support each other with nutrient cycling, shading, water conservation, and/or repelling pests.

## Advantages of intercropping

Intercropping vegetable crops with ornamentals increases veggie productivity and reduces pest damage in many ways. For example, using flowering ornamentals to attract pollinators can boost pollinator visits to vegetable crops and enhance yields. Flowering plants can also attract parasitoid wasp species that prey on damaging garden pests, thereby reducing destruction of foliage and fruits of crop species.

Trap crops are intentionally planted to mature ahead of the

main crop and are positioned away from the primary garden site to draw pests away. Plants like Juliet cherry tomatoes and ‘Blue Hubbard’ squash make good trap crops for pests like striped cucumber beetles, tomato aphids, and squash bugs.

Species diversity is a strength because a mix of shapes and sizes can be less appealing to a potential pest than a mass planting of its favorite target species. As with the Three Sisters, using a legume species like peas or beans with a non-legume is a natural way to boost soil fertility.

## Intercropping in containers

Intercropping principles can be incorporated into container gardens by mixing vegetable and ornamental plants in a single large container display or by grouping smaller pots planted with different species. When working in a container garden versus a larger system, some intercropping practices are easier to implement than others.

When intercropping in container gardens, keep the following factors in mind. Since all areas of the container will receive the same level of sun exposure and water, the plants must have similar preferences for both. Generally, vegetable crops need full sun exposure and

moderate amounts of water. For this reason, shade-loving ornamentals do not make great container-mates for vegetables.

In 2009, Leah Riesselman at Iowa State University conducted a preliminary trial pairing common vegetable crops with other vegetables, herbs, or flowering ornamentals and measuring the percent of the crop damaged by pests. The crops tested and the best intercrop partner for each are listed in Table 1, page 6. While these results may not translate perfectly to a Wyoming setting, they may serve as a starting point when considering which species to pair.

## The Myth of Companion Plantings

Planting different crops together for the purpose of leveraging plant characteristics is most accurately described as intercropping or plant associations, as opposed to the traditional term “companion planting,” writes Washington State University Extension horticulturist Linda Chalker-Scott. For a deep dive into the language of this topic, check out her article “The Myth of Companion Plantings” at <https://bit.ly/myth-planting>.

Container gardening comes with space limitations. When selecting plant cultivars, look for compact, bush, and determinate (they reach a certain height and stop growing) varieties. For more information on vegetable varieties suited to Wyoming conditions, visit <https://bit.ly/wyo-grow-vegetables>. Contact your local extension office with questions.

To maximize use of space, mix early- and late-season crops so that harvests are staggered. A large container with a tomato in the center surrounded by a ring of lettuce plants will allow the early leafy green

crop to shelter the tomato. When the lettuce is harvested, the increased space and light penetration will allow the young tomato to gain some height before the lettuce regrows for a second harvest.

One advantage of planting in containers is they can be easily moved inside and outside according to the weather conditions. No one likes to see frost damage on their vegetable plants!

### Get creative

It's fun to mix flowers and veggies in a container planting. The result can be unexpected and produce

visually interesting combinations. Many common vegetables are available in ornamental or unusual colors and patterns that are not available at the grocery store and can be used to elevate the aesthetics of a container garden. Heirloom varieties often stand out for their shapes and colors. Using ornamental flowers in color palettes that coordinate or contrast with the shades of ripening vegetables can create particularly eye-catching displays.

When space is limited, using intercropping in container gardens can beautify an area with ornamental flowers while also providing a crop of vegetables to enjoy in the kitchen.

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Crop Species	Best Intercrop Partner Species
Cabbage ( <i>Brassica oleracea</i> v. <i>capitata</i> )	Onion, Nasturtium, Basil, Thyme
Broccoli ( <i>Brassica oleracea</i> v. <i>italica</i> )	Marigold, Onion, Nasturtium, Thyme
Lettuce ( <i>Latuca sativa</i> )	Onion, Nasturtium, Thyme
Zucchini ( <i>Curcubita pepo</i> )	Marigold, Nasturtium
Tomato ( <i>Lycopersicon esculentum</i> )	Basil, Thyme

**Table 1.** Information from Iowa State University, Armstrong and Neely-Kinyon Research and Demonstration Farms. Publication RFR-A9099. See full paper at <https://bit.ly/partner-plant>.



### More from UW Extension

*Landscaping with Container Gardens*, UW Extension bulletin:

[https://bit.ly/uwyo\\_containergarden](https://bit.ly/uwyo_containergarden)

“Think container gardening if looking to raise vibrant veggies,” *Barnyards & Backyards*:

<https://bit.ly/vibrant-veggie>

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