

THE EDIBLE GARDEN

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THE LEGUME (POD) FAMILY

SOIL FIXERS

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The Legume Family boasts 18,000 varieties, third after Orchids with 20,000 and Sunflowers with 24,000. The “pod” family includes familiar plants such as beans, soybeans, peas, lentils, peanuts and clover, and the less familiar alfalfa, lupins, carob, mesquite, tamarind and wisteria. Acacia, Honey Locust, Black Locust, Kentucky Coffee Tree and Caragana are leguminous trees.

Leguminosae (or Fabaceae) bears fruit in the form of seed pods. The nodules on their roots contain bacteria that takes nitrogen from the air and converts it into a form that plants can use. Legumes are especially intriguing and monumentally useful because of this ability to fix nitrogen.

Legumes are widely cultivated for food, fodder, and soil improvement. Classes of agriculturally useful legumes include Forage, Grain, Blooms, Pharmaceutical/Industrial, Green Manure and Timber. All have a substantial impact on human well-being.

Livestock forage on legumes. Probably the most familiar forage legumes are alfalfa and clover but some trees and shrubs can be ground down to serve as livestock feed. Farmers store legumes as silage for feed. Legumes, typically alfalfa and clover, are also sown as cover crops that then serve as green manure to be ploughed into the soil as fertilizer. Thus a self-sustaining cycle is established, pastures and fields continuously revitalized with well-planned crop rotation.

Crop rotation is possible even on small lots. If the roots of legumes are left in the ground they enrich soil for next year's crops.

Grain legumes include beans, lentils, lupins, peas and peanuts, the latter being the only legume that produces seed underground. Legumes are a major source of food protein in the human diet. They contain four times the plant protein as whole wheat and are a dietary source of fibre, carbohydrates and micronutrients.

The largest pod grows on a lianas vine (Entada gigas). It can be up to 1.5m (5ft) long but not in northern climates.

We don't usually think of lupins as legumes, let alone legumes that produce edible grain. However in some parts of the world lupins are an important staple. Here they are often prominent in our ornamental gardens and can be used to produce dyes and natural gums.

BEANS GALORE!

The Common Snap Bean – Bush Snap Beans: *Phaseolus vulgaris*

Bush Snap Beans, green or yellow, have a long production period and do best in full sun and well-drained average soil. They are frost tender thus they should be started

THE THREE SISTERS

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Native Americans regarded the three sisters - corn, beans and squash - as “sustainers of life” and “gifts from the Creator”. It is not hard to understand why they would think of them in this light. Sisters support and sustain each other. Plant sisters can do the same.

Native Americans learned through long practice that interplanting corn, beans and squash produced superior crops - especially when planted on mounds enriched by organic wastes gathered on site. Corn provided support for pole beans. Squash, planted to surround and cover the planting area, helped to control weeds and preserve moisture. Its vines also made it more difficult for animals to get at the corn. Beans as conscientious legumes spurred energetic growth in the corn and the squash. Planting the sisters around a tree stump captured more nutrition from decades of leaf mould accumulation.

Today we know more about why this three way combination works so well. Corn, being a heavy feeder with some shallow roots, needs enriched soil and shade for those roots. Beans and squash can provide both. Pole beans are able to use the corn as a trellis and they too offer a modest amount of protection for the corn. Squash covers the ground thus providing living mulch. The shade provided reduces the amount of moisture lost through evaporation.

indoors or seeded directly when soil has warmed and danger of frost has passed. Usually it is best to leave 90cm. between rows and 5 to 10 cm between each seed planted. However it is also possible to plant more intensively as in the Square Foot Gardening approach. Succession planting allows for more than one crop per year. Top dressing once or twice during the growing season will keep plants energized.



Photo by Edythe Falconer

Pole Snap Beans take less space and are easier to harvest. Given adequate support they can easily climb to heights up to 4.2 to 4.5m. Support is best installed before putting seed into the ground. Three or four seeds can be sown at the base of each supporting pole. Pole beans produce all summer long and into the fall and regular harvesting encourages more fruiting. If they overwhelm you with their generosity you can dry them on their vines for winter use and next year's seed beans. Pole beans such as the ever popular Scarlet Runners or *Phaseolus coccineus* can adorn arbours and screen porches. Hummingbirds love them.

Peas and beans, dried or fresh, have been used as far back as 9750 B.C.

PEAS PLEASE

Peas or *Pisum sativum* are a cool weather crop so get seeds into the ground as early as possible. Seedlings can take a bit of frost. In late July or early August a second planting is OK when the hottest part of summer has passed. By choosing varieties with different maturity dates it is possible to get sequential crops. Whether or not we use treated or untreated seed depends upon our assessment of advantages and disadvantages. Organic growers prefer "untreated".

Peas like soil to be loamy, well-manured and possibly laced with a dash of commercial 5-10-10. Peas need to be grown against wire fencing or with some form of support – especially if they are tall varieties. Supports should be in place before seeding or at least before the peas start to climb. They can be planted in trenches in double rows and rows should be 60-120 cm apart. Mulching through hot spells may help them to remain productive.

Shell varieties have inedible shells. Their seeds, however, can be used fresh or dried or can be frozen retaining most of their nutrition.

Snow Peas or *Pisum sativum macrocarpon* are available in dwarf or tall size and can be enjoyed raw, steamed or frozen. Daily harvesting is essential.

Sugar snap peas are a cross between snow peas and shelling peas. As climbers they are capable of producing 1.8-3m vines. Some say "Twice as much food for half the work".

PEANUTS!

Peanuts or *Arachis hypogaea* are a novelty for northern gardeners but not out of the question. (I've grown them.) In May plant nuts in poor, slightly acid, sandy soil. Dig them before first frost and hang them in a dry location to cure. Seeds are available from some seed retailers such as OSC.

If you are interested in companion planting some "Friends of Beans and Peas":-

- Plant Beans with potatoes, tarragon, basil, dill, salvias and snapdragons – especially potatoes.
- Plant Peas with calendulas, marigolds, sweet alyssum, pinks, and pansies.

Beans are part of the legume family. In conjunction with specific soil organisms, the roots of beans are able to fix nitrogen, as are all members of the legume family. Soil organisms and bean roots form a symbiotic (mutually beneficial) partnership. Together they are able to take nitrogen from air and store it in a form usable to the host and other plants. Nitrogen is necessary for the healthy development of green foliage, and therefore is crucial to the process of photosynthesis. As soil organisms and rootlets die and decay, usable nitrogen is released into the soil. Both corn and squash benefit from this remarkable process.

Another way of looking at this triad is to think of it as a fine example of companion planting. Companion planting is the practice of growing plants in groups that complement each other in the same way as do the three sisters. Companion planting has its proponents and its sceptics. However there is no arguing that the three sisters are a successful combination.

If you would like to try this plant partnership next spring, start this fall by preparing a mound of soil 1 – 1.5 metres across and then flatten it somewhat. In the spring plant four kernels of your favourite corn, one for each geographical direction. When the corn has grown to about 10-12cm, plant the same number of pole bean seeds further away from the centre of the mound. At the edge of the mound, plant one or two squash or pumpkin seeds.

Not often mentioned is a fourth sister commonly known as 'The Rocky Mountain Bee Plant' or Cleome. It was often combined with the other sisters because of its ability to attract a profusion of pollinators.

By inviting the sisters into your garden you will have recreated a bit of North American history, conducted an interesting experiment in companion planting and nitrogen fixation, and will have produced tasty healthy vegetables for your dining pleasure.

THE SQUASH VINE BORER

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Some things sneak up on us. The squash vine borer is one of those things. Two summers ago I became increasingly puzzled by the progressive drooping of what had hitherto been very healthy squash and pumpkin vines. I had them in good soil and watered them regularly. Soon drooping turned to withering and I had a closer look at the two vines most affected. At the base of each plant and not clearly visible except close up was an apparent abrasion with some sawdust-like refuse in and around it. Could this be the problem?

Turning to our friend Google I soon discovered that I was dealing with “a new-to-me” enemy. This particular borer attacks and feeds at the base of the vines until the plants’ circulation systems are destroyed. Had I been thoroughly monitoring my vines all along I might have been able to save them.

There’s not much by way of prevention but thorough cultivation can destroy their cocoons. At planting time the base of the vine can be wound with thin bands of row cover material that extend above and below ground level. Later if borers are discovered early enough they can be excised from the stem and the damaged stem can be mounded up with earth and/or wrapped in a similar fashion as above to prevent further incursions. The covers are temporary and can be removed in mid-July. This would be especially important if whole plants were covered with Remay because bees can’t pierce Remay.

Further control can be achieved by doing a weekly spray of the whole vine with insecticidal soap. However BTK is more selective than insecticidal soap. It only kills caterpillars that munch on sprayed plant parts.

The fancy name for this borer is *Melittia cucurbitae*. It is a species of sesiid moth often mistaken for a bee or a wasp. The moth is gray with opaque front wings. The caterpillars are 2.5cm long with brown heads and cream-coloured bodies.

The moth will lay up to 200 eggs in late spring and these hatch in 7-10 days. The eggs are tiny but they soon emerge as hungry caterpillars happy to attack squash and pumpkin vines. They eat heartily for 4-5 weeks and then drop into soil to pupate.

Last year I didn’t plant any of the cucurbitaceae family. Well, hardly any. My cucumbers did well. This year I have squash and pumpkins in and will be watching them very closely!

References:

Vegetables From a Country Garden – Anstace and Larry Esmonde-White

Great Garden Companions – Sally Jean Cunningham

<http://www.extension.umn.edu/garden/insects/find/squash-vine-borers/>

Watch for *Trowel Talk* the Master Gardeners of Ottawa Carleton electronic monthly gardening newsletter available on the 15th at <http://mgottawa.mgoi.ca/>

Visit the Almonte online community newspaper ‘*The Millstone*’ - <http://millstonenews.com/> - for a column by David Hinks of the Ottawa Carleton Master Gardeners; under the Gardening tab

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BLACK BEAN SALAD WITH CORN, RED PEPPERS AND AVOCADO IN A LIME-CILANTRO VINAIGRETTE

By Jennifer Segal

Servings: 6-8

Total Time: 30 Minutes

Ingredients

70 g (2 15-oz) cans black beans, rinsed and drained

3 ears fresh cooked corn, kernels cut off the cob

2 red bell peppers, diced

2 cloves garlic, minced

2 tablespoons minced shallots, from one medium shallot

2 teaspoons salt

1/4 teaspoon cayenne pepper

2 tablespoons sugar

9 tablespoons extra virgin olive oil, best quality such as Colavita

1 teaspoon lime zest (be sure to zest limes before juicing them)

6 tablespoons fresh lime juice

1/2 cup chopped fresh cilantro, plus more for garnish

2 Hass avocados, chopped

Instructions

Combine all ingredients except for avocados in a large bowl and mix well.

Cover and chill for a few hours or overnight. Right before serving, add avocados and mix gently, being careful not to mash avocados. Garnish with more chopped cilantro if desired.

Serve at room temperature.

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