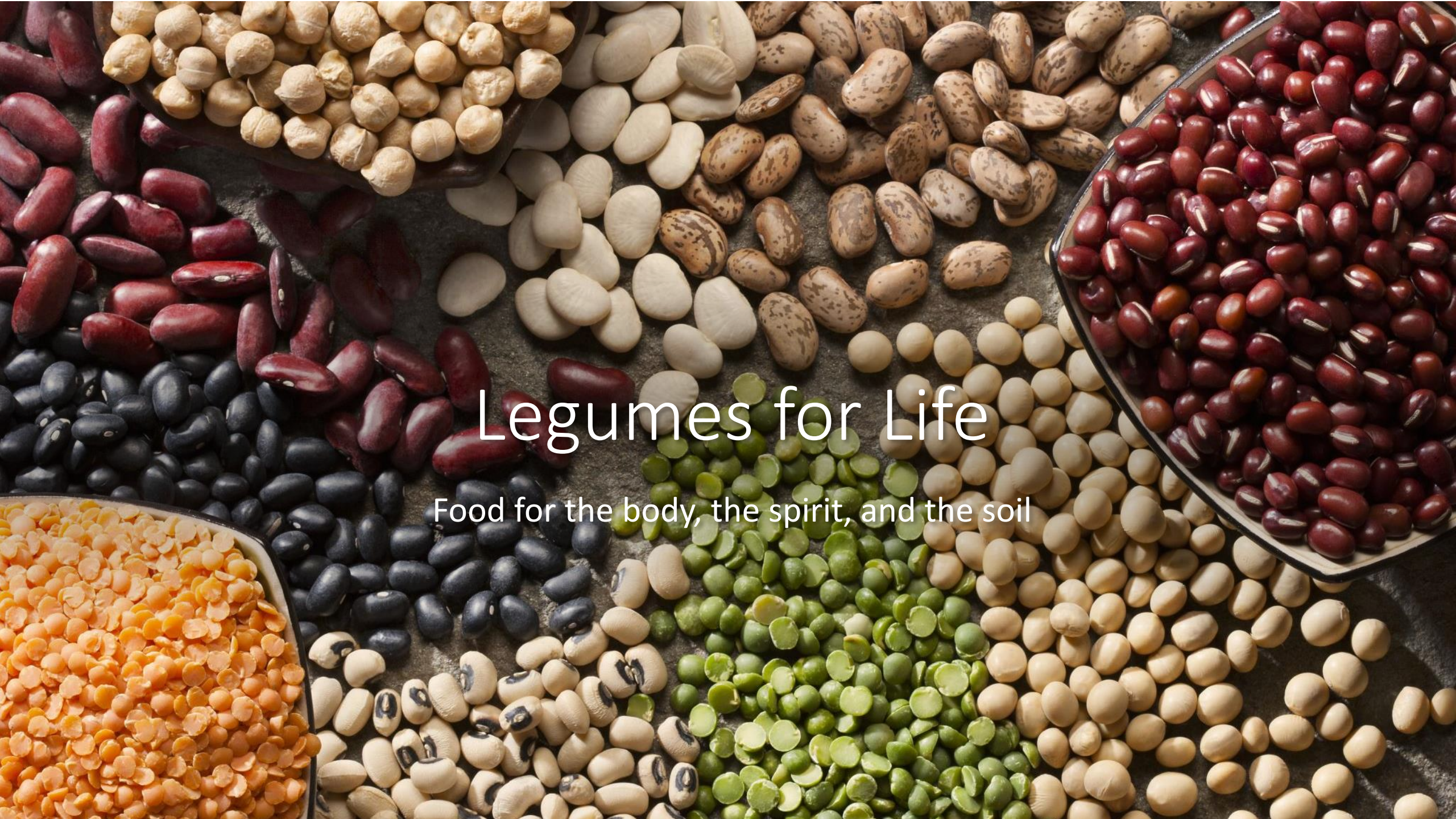


Legumes for Life

Food for the body, the spirit, and the soil

Legumes – who are they?

- Trees, shrubs, perennials, and annuals
- Ornamentals, cover crops, and many edibles
- Nitrogen fixing bacteria in roots (most do, a very few do not)
- Each individual flower forms a pod that splits down the middle, and seeds are mostly or exclusively attached to the seam of one side

Tree and shrub legumes

- Mostly tropical and subtropical
- A few common plants you'll recognize
  - Wisteria, locust, redbud
- Standard tree and shrub care
- Most are slightly to very toxic

Perennial legumes

- Some are cultivated, but many are “wildflowers”
- Lupine is probably the best known
- Other native wildflowers
  - Milkvetch
  - Deer vetch
  - Prairie clover
- Most are easy to plant and grow
- Many are slightly to very toxic

Annual legumes

- Ornamentals
  - Sweet Pea
  - Hyacinth bean

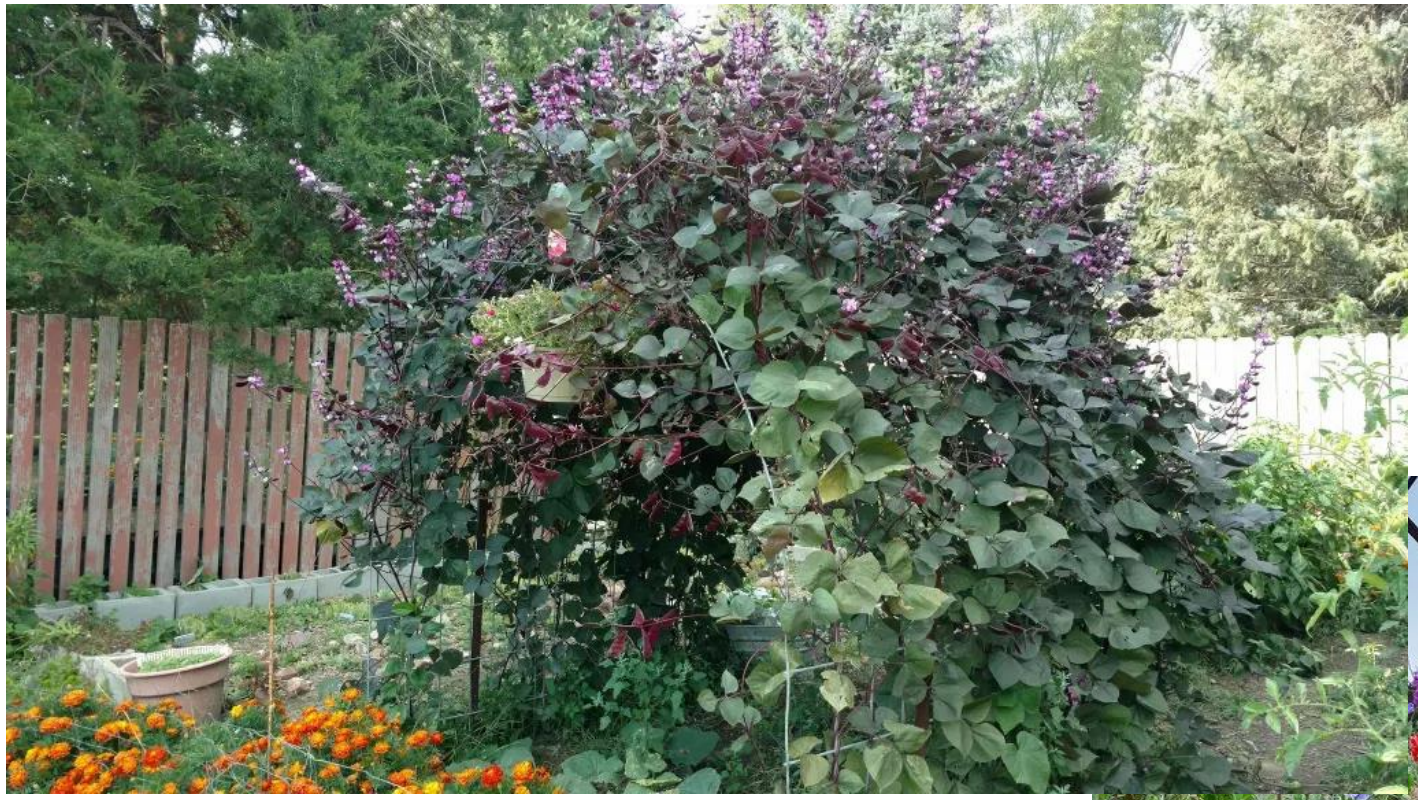
- Vegetables and herbs
  - Peas
  - Beans
  - Soy
  - Fava
  - Others

- Cover crops
  - Clover
  - Vetch
  - Alfalfa
  - Others

Ornamental Annual Legumes

- Cool season: Sweet Pea
  - Pre-soak 8-12hrs or “chip” with knife or nail clippers for better germination
  - Start seed indoors mid January or direct sow in late February
  - Transplant at about 8-10 weeks, March-April
  - Pinch back for branchier habit and more flowers
  - Blooms early summer, longer if deadheaded but declines above 80F
  - Support on moderate structures
- Warm season: Hyacinth Bean
  - Pre-soak 8-12hrs or “chip” with knife or nail clippers for better germination
  - Start seed indoors early April or direct sow mid May
  - Transplant mid to late May
  - Blooms late summer to fall
  - Grows fast, support well

Despite the resemblance to edible legumes, these should be considered toxic. They are not edible.



Hyacinth vine
Photo: *picketfencegreehouse.dianemumm.com*

Sweet peas
Photo: Michael Garlick *geography.org.uk*

Legume edibles – the main groups

- Peas
- Green Beans
- Shelling / dry beans
- Soybeans
- Lima beans
- Fava beans

Legumes and pulses – and why should we grow and eat them?

- All beans, peas, and such are legumes.
- Pulses are dried legume seeds – chickpeas, or lentils, or dry shelling beans. The term usually excludes high oil content legumes such as peanut and soy
- Legumes and pulses provide a plant based source of protein. They are very low in fat and are full of vitamins and minerals such as B vitamins and zinc
- Legumes and pulses are excellent sources of dietary fiber
- They also provide a fullness and savor to many dishes they are used in
- Pulses can be stored for very long periods of time without resorting to freezing or canning – your late summer harvest can be eaten through the entire next year – or longer

Peas

- Early season crop that fades in summer heat
- Very cold tolerant
- Tendrils and smaller vines also edible
- Pea categories:
  - Shelling peas
  - Snow peas
  - Snap peas

Growing peas

- Planting
  - Direct sow as early as late January
  - Pre-germinate
  - Can start inside and transplant, but fragile and volume is needed
  - Plant seeds 1” deep and 1-2” apart and at least 24” between rows
  - 1 ounce of seed plants 15-20 row feet

- Training
  - “Bush” peas vs tall peas
  - Self-climbing tendrils

- Care
  - Fertilize lightly
  - Water regularly
  - Pests – slugs, aphids, pea weevils

- Harvest
  - Pick 2-3 times per week
  - Pick at full for shelling and snap, or up to desired size for snow peas

Pea varieties

- Peas – snow peas and snap peas
  - Sugar Daddy (snap)
  - Super sugar snap (snap)
  - Oregon Giant (snow)
  - Oregon Sugar Pod (snow)
  - Cascadia (snap)
  - Sweet Horizon (snow)
- Pea varieties – shelling peas
  - Alderman (Tall Telephone) (pole)
  - Sabre
  - Little Marvel
  - Green Arrow
  - Progress
  - Alaska Early
  - Maestro

Green Beans (Snap Beans)

- Major production crop
- Early summer through fall production
- Bush beans vs. pole beans
- Romano beans
- Runner beans and more

Growing green beans (snap beans)

- Planting
  - Direct sow when soil has warmed up – mid May or later
  - Can start inside and transplant, but fragile and volume is needed
  - Seed 1” deep 3-4” apart. Allow at least 24” between rows for bush beans, more for pole
  - 1 ounce of seed plants 10-15 row feet

- Training
  - Bush beans seldom need support
  - Pole beans can get quite large, best yields if trellised high enough you can just barely reach to pick

- Care
  - Fertilize well
  - Water consistently – dry garden is an option for bush beans
  - Pests – aphids, beetles

- Harvest
  - Pick every 2-3 days for continuing harvest.
  - Bush beans will flush, regrow and flush again, but pole beans go continuously
  - Pick when beans are full but before they get “seedy”

Snap bean varieties

- Pole beans
  - Blue Lake Pole
  - Kentucky Wonder Pole
  - Kentucky Blue Pole
  - Musica (romano)
  - Emerite
  - Trionfo Violetto (romano)

Wax beans are simply pale colored green beans

Romano beans are broader flatter snap beans. They hold up better to long cooking.

- Bush Beans
  - Provider
  - Wyatt
  - Blue Lake Bush
  - Contender
  - Jade
  - Royal Burgundy
  - Capitano (romano)
  - Golden Gate (romano)
  - Gold Rush

Other ‘Snap’ beans

- Runner beans – often grown as ornamentals for their rapid growth and showy flowers. When harvested young they are suitable to use in place of snap beans, though flavor is not identical. You can also let them finish and dry them as shelling beans – not always successful here.

- Yard-long beans are an interesting crop, often better stir-fried in oil than boiled. Not really a ‘bean’, but treat like pole beans

Growing dry and shelling beans

- Planting
  - Direct sow when soil has warmed, mid May or later
  - Seed 1” deep, 3-4 inches apart and leave 24” between rows

- Training
  - Bush beans will need some support
  - Pole beans can be quite large

- Care
  - Moderate water
  - Moderate feeding
  - Pests – aphids, beetles, weevils

- Harvest
  - Beans are dry when pods are crisp and fully tan
  - May not dry on the vine here
  - Harvest entire plant and hang in warm dry location before frost or fall rains
  - Shell for storage

Dry shelling bean varieties

- Higher likelihood of succeeding
  - Cranberry
  - Cannellini Lingot
  - Bingo
  - Yin Yang
  - Henderson Bush (Lima)
  - Jackson Wonder (Lima)
  - Fordhook 242 (Lima)
- Stretching the zone
  - Black Coco
  - Missouri Bill
  - Santa Maria Pinquito

Limas and other ‘green shellers’

- Many ‘dry shelling’ beans are quite tasty (and easier to cook and eat) when harvested immature in their green stage

- Limas are the classic example of this – they even have their own terms – ‘baby lima’ or sometimes ‘shelly bean’

Growing fava beans

- Planting
  - Direct seed September to October, or February to March
  - Seed 1” deep at 5-6 inches apart, with at least 24” between rows

- Care
  - Water consistent
  - Feed moderate
  - Pests – aphids, beetles, weevils
  - Tall (4 ft) but bushy, don’t usually require support

- Harvest
  - Favas don’t harvest all at once, usually in two or three batches over 2-4weeks
  - Fall plantings harvest April-May, spring plantings harvest June-August
  - Harvest when pods are full, before they dry out
  - Remove seed coat before eating or freezing
  - Whole young pods and young leaves may also be eaten

Growing soybeans

- Planting
  - Direct seed after soil warms, mid May or later
  - Plant seeds 1” deep and 2-3 inches apart, with at least 24” between rows
  - Can be seeded indoors for transplant, 4-5 weeks
- Training
  - Bush habit, don’t usually need support
- Care
  - Consistent watering
  - Moderate feeding
  - Pests – aphids, beetles
- Harvest
  - Dry soy probably not worth doing for home gardeners here
  - Edamame are green ripe soybeans, just before they begin drying
  - Harvest edamame when pods plump and turn bright green, before any leaves begin to yellow (about 12 weeks)

Legume edibles – less common

- Chickpeas / Garbanzo Bean
  - Not really enough hot season here
- Fenugreek
  - Sprout or seed or vegetable
  - Unique sweet-pungent flavor
- Lentils
  - Challenging due to short and sometimes damp growing season

Growing Garbanzo

- Planting
  - Direct sow in spring (late March-early April), in very well drained soils
  - Seed 1-1/2” – 2” deep, 6” apart and at least 24” between rows
  - Can start indoors and transplant (4-5 weeks)

- Care
  - Low to Moderate water
  - Moderate feeding
  - Pests – aphids, beetles, weevils
  - High temperatures during flowering and pod development can ruin pods, as can rain at the end of the maturation

- Harvest
  - For green garbanzos, harvest when pods are full and plump. Squeeze out the seeds to eat or to cook
  - For dry garbanzos, let pods dry on the vine (about 3 weeks past full green). Hang whole plants inside to finish drying like other dry shelling beans

Growing Fenugreek

- Planting
  - Direct sow when soil has warmed, mid May or later
  - Seed shallow, about ¼” deep and at 5” spacing

- Care
  - Moderate water
  - Moderate feeding
  - Pests – aphids, beetles

- Harvest
  - Cut to harvest greens at around 10” tall; expect resprout for additional harvest or for seeds
  - For seeds harvest pods after they begin to yellow. Dry pods and thresh or shell seeds

Growing Lentils

- Planting
  - Direct sow in well drained soil in spring, late March-April. Late May or later plantings not likely to finish. May have to plant from grocery store – commercial volumes are available, but very limited home grower sized packages
  - Seed dense, about 1” deep and at 1” spacing; allow 18” between rows

- Care
  - Moderate water
  - Moderate feeding
  - Pests – aphids, beetles, weevils

- Harvest
  - When pods brown, harvest whole plant and hang indoors to finish drying.

Legume edibles – unique and exotics

- Cowpeas
  - Very difficult to mature here
  - Start indoors in April to transplant May to early June
  - Harvest green for immediate use when pods are full and plump
  - For dry beans harvest as pods begin to dry. Harvest whole plant and hang indoors to finish drying, until pods reach shatter stage
- Winged Beans
  - Very difficult here
  - Start indoors in March to transplant in June. Nick seeds
  - Use day-neutral types – they produce earlier.
  - Harvest pods at around 2”-3” long
  - Leaves, flowers, tendrils, and tubers also edible
  - Very large vine – large pole bean

Legume edibles – unique and exotics

- Mung Beans
  - Not maturing here – long hot season needed
  - Can be used for sprouts
- Peanuts
  - Not likely worth growing here unless you are a fanatic zone denier
  - If trying – warm soil with dark fabric starting mid-April. Start seed indoors, transplant very end of May or very early June
  - Require very well drained and slightly alkali soil
  - Weed and cultivate very carefully – seed pods develop underground
  - Harvest at about 120 days – look for first signs of yellowing foliage. Harvest whole plants gently, rack inside 2 weeks or more until dry

Expanding your growing days

- Don’t plant too early! If you want to try legumes that are marginal, start indoors and transplant
- Prepare the planting area with dark fabric a few weeks before planting to warm the soil. Build up for drainage – most legumes won’t tolerate wet heavy soils
- Plant in a warm or sheltered location
- Use frost blankets or other covers at the end of the season if needed – not practical for large vine / pole types
- Drying legumes seldom finish well naturally here, harvest before fully dry and hang inside. Small seeded or shatter-pod type legumes (lentils and others) need to be careful not to lose the seeds as they split on the vine inside

Legume cover crops

- Clover
- Alfalfa
- Vetch
- Field Pea
- Forage Fava

- Clover
  - Many types of clover – some are perennial, others annual. Usually use annual types for cover crop – Crimson Clover is common
  - High nitrogen value, better the longer it grows
  - Cool season cover – plant late summer to early fall for winter cover and spring tilling
  - An excellent cover crop, but picky about drainage and pH.
  - Thick dense cover, can get tall

- Alfalfa
  - Can be fall seeded (August-September) as a winter cover or spring seeded (April-May) as a summer cover
  - Very high nitrogen value, better the longer it grows
  - Winter hardy to about 0F. Very high temperatures inhibit growth
  - Resents poorly drained soils
  - Large and coarse; persistent perennial
  - More widely used in drier climates

- Vetch
  - Germinates well in cooler temperatures and is winter hardy
  - Very high nitrogen value and good biomass, even earlier in growth
  - Delayed seed dormancy can be a nuisance, as can reseeding
  - Deters symphylans
  - Suitable for no-till
- Field Pea
  - Germinates well in cooler temperatures and is winter hardy
  - More soil adaptable than most
  - Moderate nitrogen value and good biomass, even early in growth

- Fava (forage)
  - Seed August-September or even into October
  - Very high nitrogen value and very high biomass, even in earlier growth
  - Very large coarse cover, can be hard to work

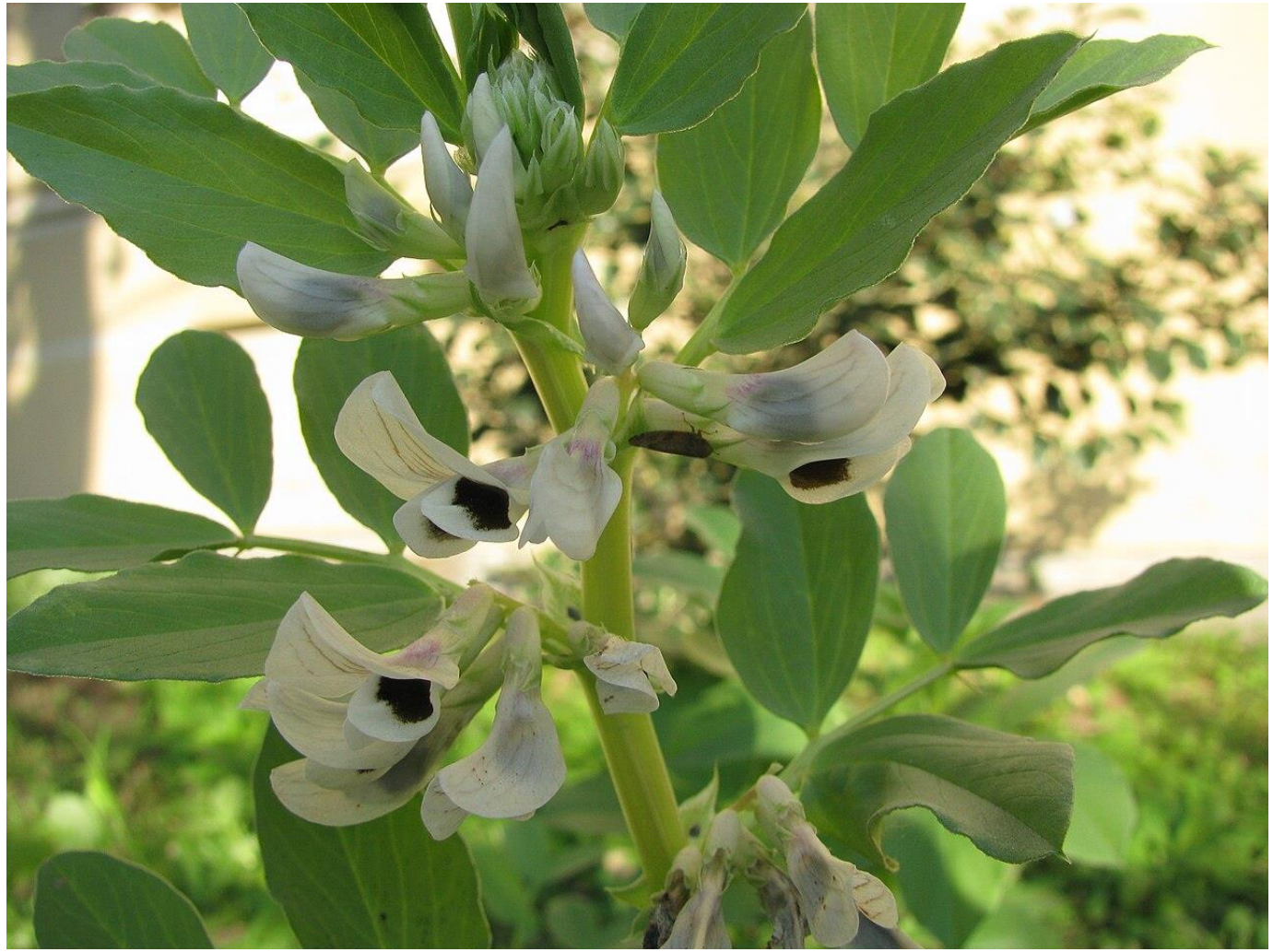


Photo credit: Museum of Vojvodina

Legume inoculants

- Legumes fix nitrogen from the air and store it in green tissues and roots by an association with a specific group of bacteria

- These bacteria may not be present, available, or dense enough; it is a common practice to inoculate either the seed or the planting area with the necessary bacteria

- Different types of legumes require different types of inoculant. Many commercial garden inoculants have several types, but few have all

Legume inoculants

- Pea inoculant
  - Peas
  - Sweetpea
  - Vetch
  - Lentil
  - Fava
  - Field peas
- Cowpea inoculant
  - Mung bean
  - Lima bean
  - Black-eyed pea
  - Yard-long bean
  - Winged bean

Legume inoculants

- Bean inoculant
  - Green beans
  - Dry and shelling beans
  - Runner beans
- Soybean inoculant
  - Soybean
- Clover inoculant
  - Alfalfa
  - Clover
  - Fenugreek

Legume pests

- Aphids
- Weevils
- Beetles
- Slugs
- Cutworms