# The West Virginia Herb Growers Guide

For Planting, Cultivating and Harvesting
Certain Botanicals in the Mid-Atlantic
Region

In This Guide:

ARNICA HAWTHORN

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GOTU KOLA YERBA MANSA

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Funded by USDA-NESARE

Copies of this guide can be obtained by calling the West Virginia Herb Growers at (304) 684-5585 ARNICA- (Arnica chamissonis)

ASTERACEAE

ASHWAGANDHA- (Withania somnifera) SOLANACEAE

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VITEX (Vitex agnus-castus) VERBENACEAE

YERBA MANSA (Anemopsis californica) SAURURACEAE

# **REFERENCES:**

Flora of West Virginia, Strausbaugh and Core, Seneca Books, Morgantown, WV. 1977 From Earth to Herbalist, Gregory L. Tilford, Mountain Press Publishing, Missoula, MT 1998 Herbal Folk Medicine, Thomas Broken Bear Squire, Holt and Co. New York, New York 1997 The

# WEST VIRGINIA

IVERB GROWERS GUIDE



# ARNICA- (Arnica chamissonis)

# **ASTERACEAE**

COMMON NAMES--

Leopards Bane, Sneezewort, Mountain Tobacco, Mountain Daisy, Tumblers Cure-All, Wolfs Bane, Flower of Recovery

# DESCRIPTION

European native, grows wild across North America. Hardy perennial, aromatic growing from 6 in. to 2 ft. in height. Large single or several daisylike flowers, 1-4 in. in diameter blooming in the second year. Leaves are basal rosette approximately 1-3 in. long, hairy, oval shaped and opposite. Basal leaves are larger than the upper. A pine-sage like aroma is produced after rubbing the leaves. Arnica has a creeping rhizome that sends up shoots at its nodes, this produces Arnica colonies.

# **PROPAGATION**

Generally propagated from seed, mature plants can be divided. Seeds must be stratified for 8 - 12 weeks. Germination is slow - 30 days or more and a low percentage of germination (30%) is average. Transplant at 3 - 4 months. Divide in spring, mature plants yield many starts.

#### PLANTING

Perennial, blooms in the second year. Transplants can be set in late spring. Spacing is at 12 in. and 24 in. between rows. Easy to plant by hand and must be watered immediately. Do not let plants dry out! Grows best in well drained, rich soil. Prefers full sun and a low soil pH. Grows slowly the first year so weeding is very important. Once it is established it is very hardy with no major pest or disease problems.

# HARVESTING

Flowers are harvested from mid-June to early July when plant is in full bloom. Roots are harvested in the fall of the year.

Arnica is on the United Plant Savers "To Watch" list and is considered endangered in the wild, so cultivation is recommended for market sales.



Ashwagandha is an evergreen shrub reaching 2 - 6 in. height and spreading to 1 - 3 feet. Leaves are very lush and green, ovate. Tiny yellow-greenish flowers are followed by red berries inside a papery calyx. Ashwagandha blooms mid to late summer. This is a native of India and only a small number of growers are planting it. The market for Ashwagandha is expected to increase due to the popularity of Ayurvedic medicine.

# NOTE --

Ashwagandha in the Indian language translates into "the smell of "horse urine"

# **PROPAGATION**

From seed or cuttings. Seeds will germinate at high rates and can be grown in flats. Can be transplanted in 12 weeks. Cuttings are taken in spring through late summer and will root very easily in sand or peat moss.

#### PLANTING

Do not set in field until soil has warmed to 70 degrees (about the same as tomatoes)

June through July. Spacing is at 12 in. and 2 - 3 ft. between rows. In growing zones

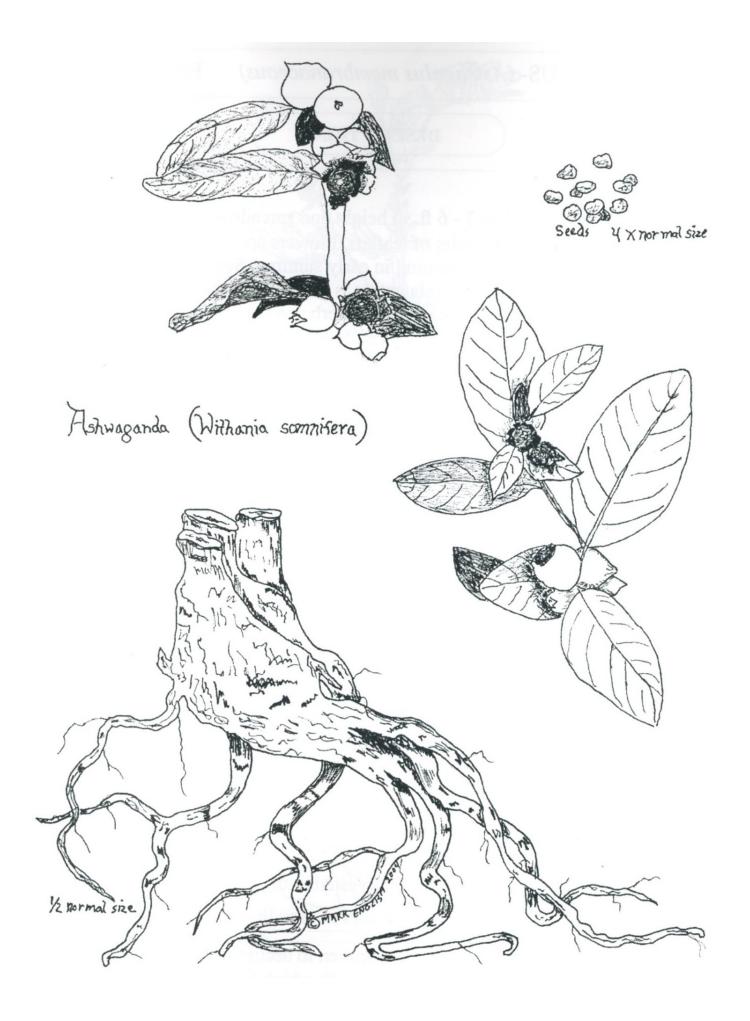
5 and 6 this is an annual. Its native climate is tropical and must be overwintered
in a greenhouse. It grows very quickly in the summer heat and competes well
with weeds. Aphids are the only known pestproblem but a weekly spray
schedule of insecticidal soap seems to keepthem under control.

With a well drained soil, fungus or root rots are not a problem.

# HARVESTING

The root is the only part of the plant used and is harvested in the fall of the first season after the first frost. Can grow quite large in one season.

( Seeds are rarely used as medicine also.)



Astragalus grows from 3 - 6 ft. in height and spreads to 3 ft. Leaves are compound with 12 to 18 pairs of leaflets. Flowers are yellow and pea-like reaching up to 1 in. long, blooming in early summer. Seed pods can reach up to 6 in. in length. This east Asia native is grown by few growers but is becoming increasingly popular as a top herb used in Traditional Chinese Medicine. Often cooked before being made into a product.

# **PROPAGATION**

Propagates very easily from seed with almost 100% germination in about 4 weeks. Very well drained soil is critical after germination to prevent root rot until about 12 weeks when plants can be set out.

# **PLANTING**

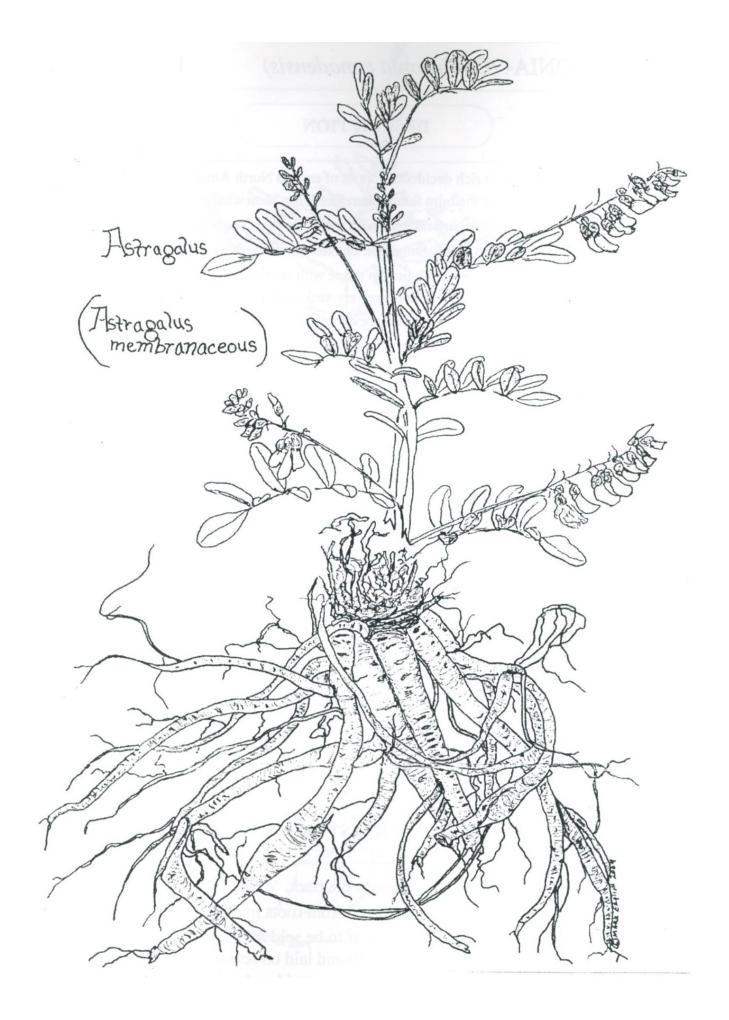
Seedlings can be transplanted in late spring to early summer. Spacing is 12 in. with 2 - 3 ft. between rows. Needs a very well drained soil, too much water can be detrimental. Raised beds might be the best way to grow this herb. No pest problems reported although root rot has been known to occur.

-- Astragalus will easily hybridize with other Astragalus species which could potentially be poisonous.

# HARVESTING

The long tap root of Astragalus is harvested in the fall of the year following 3 or more years of growth.

WARNING-- Astragalus has been proven to accumulate Selenium in its tissues. Do not cultivate in soils with a high Selenium content.



Herbaceous perennial, grows in rich deciduous forests of eastern North America. Prefers moist areas often along streams. Member of the mint family therefore it has somewhat of a square stem.

Stems rise to 2 - 5 ft. from a thick hard rhizome with many rootlets. The roots are very tough and hard to cut therefore the common name, Stoneroot. Leaves are arranged as opposite pairs alternating at 90 degrees to one another. Ovate to elliptical in shape with coarsely serrated edges and can be very large when mature. Numerous yellow flowers are very striking having stamens and stigmas protruding beyond a fringed lower lip. Flowers are on a terminal panicle appearing in late summer.

Leaves and flowers have a lemon scent.

# **PROPAGATION**

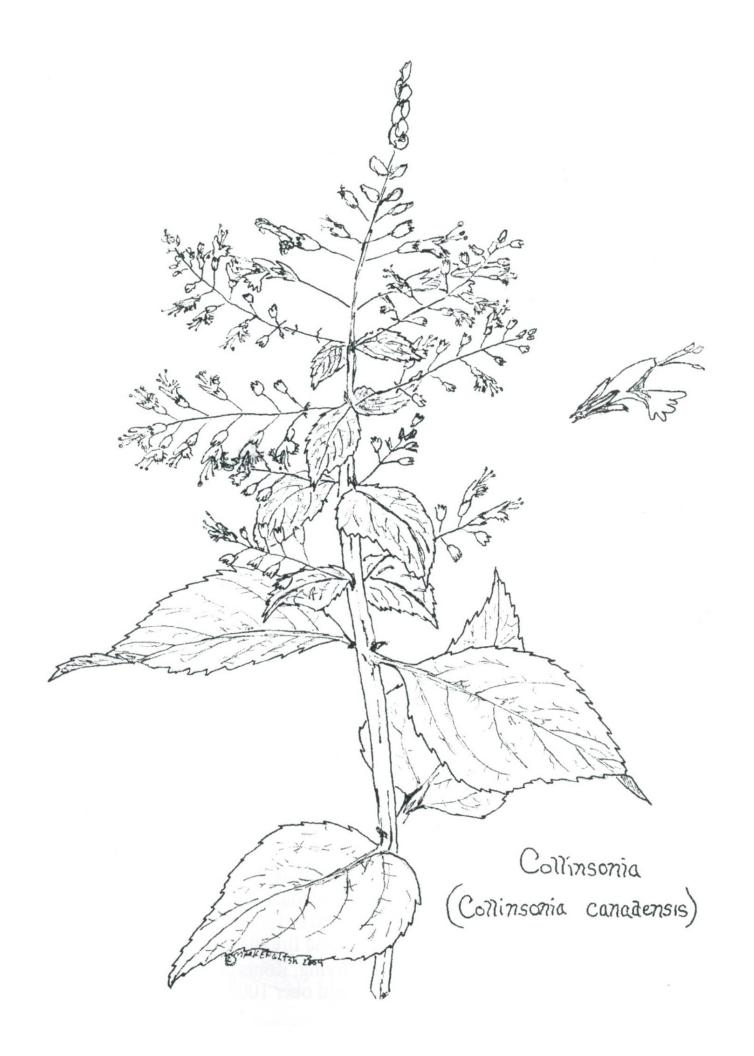
The seed must be stratified for 4 - 8 weeks or sown directly in beds in the fall for natural stratification. Division in late fall or early spring can be done when roots are harvested. It is reportedly better to gather seedlings in the spring in an area of established plants from self-seeding. This is much more successful than greenhouse propagation.

#### PLANTING

Late spring or early summer seedlings can be set out in beds. Spring planting is best due to easier weed control. Seedlings must be watered after planting They are spaced at 18 in. apart and 2 - 3 ft. between rows. Likes lots of organic matter. This perennial also likes partial shade but will do well in full sun as long as it's kept well watered. No disease or pest problems reported.

# HARVESTING

Roots are harvested in the fall after the tops die back. Whole plant is harvested as the first flowers appear. Soil should be removed from roots immediately after harvest to avoid it drying in hard- to- reach places. If to be sold fresh, roots can be processed immediately. Dried roots can be cut up fresh and laid on screens to dry. Rotate roots occasionally to allow even drying. Stoneroot is considered endangered so only cultivated roots should be sold.



Biennial, native to east Asia. Generally called "Dong quai.". The highly aromatic root of this plant is one of the most commonly used botanicals in Chinese medicine and is now being used in western herbal medicine. Grows under similar conditions as common Angelica and has the same appearance. There was no viable seed in this country for years but now good seed is found from most seed companies.

# PROPAGATION

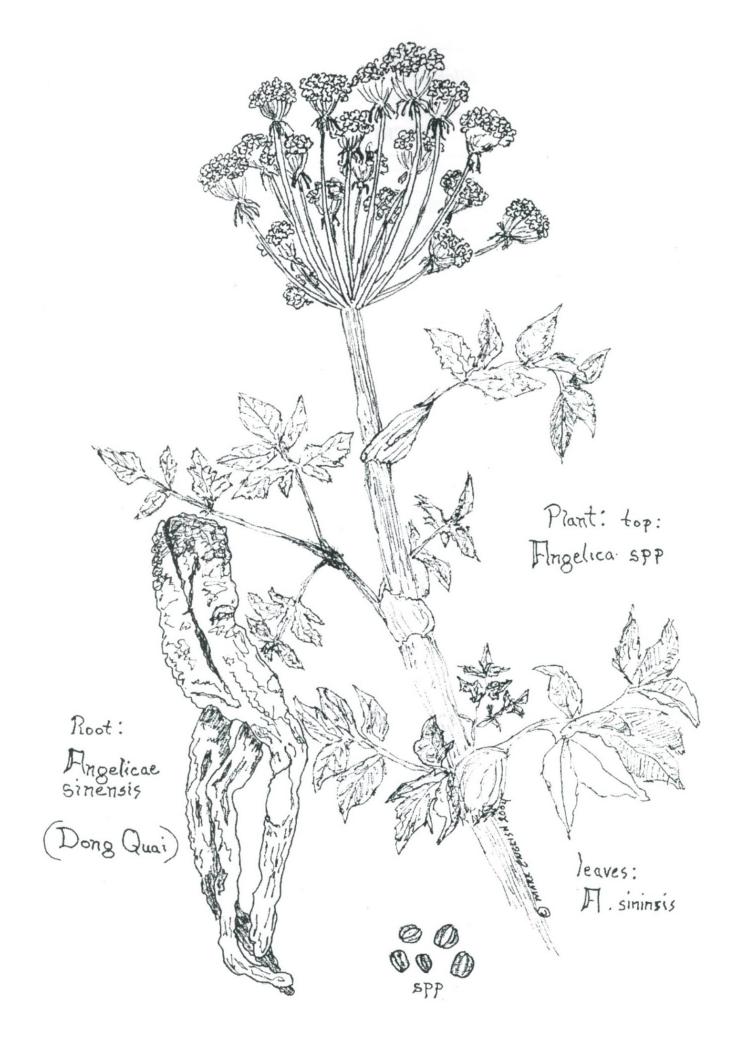
The seed can take up to 4 months to germinate. Seed viability is very short so after 6 months the seed is no longer any good. Starting media must be kept moist through the germination process. The best way is to sow your seed directly in beds in the fall of the year so germination occurs in spring.

# **PLANTING**

Thin seedlings to 12 in. and 2 - 3 ft. between rows. If transplanted from a greenhouse they need to be planted early for best possible harvest in the second year. It is very cold tolerant. Dong quai is very deeply rooted so it needs a good deep, friable soil. A pH of 4.5 to 7 is preferred. It can also take lots of water so it will do well in wet spots where other plants will not grow. No major pest or disease problems have been reported with this plant.

#### HARVESTING

It is the root that is generally used. The root is harvested in the fall of the second year of growth, dried and cured. It can be harvested by hand or with a root digger. Due to its tendency to rot, the roots are harvested during dry weather and shaken free of dirt, not washed or rinsed in water. Roots can then be dried slowly in the smoke of a wood fire to cure them. The roots should be turned several times for even drying. Roots can get quite large, up to three pounds per fresh root. It can yield over 1000 lbs. of dry root per acre.



Ginkgo is a deciduous tree reaching up to 130 ft. in height and spreading to 60 ft. Has fan shaped leaves which turn yellow in the fall. Male and female flowers occur on separate plants. The female plant produces a very bad smelling plum-like fruit. Ginkgo is considered to be one of the oldest living tree species on earth remaining unchanged for about 200 million years. Ginkgo is a native of China and is no longer found in the wild.

# **PROPAGATION**

Seeds can be directly sown in the fall of the year. The preferred method is to sow in the spring after 4 - 6 weeks of stratification. Ginkgo can be kept in pots for several years and kept in the greenhouse or home over winters. It has a much better chance at survival when set out if you allow the plant to age a few years in a 1 gal. pot.

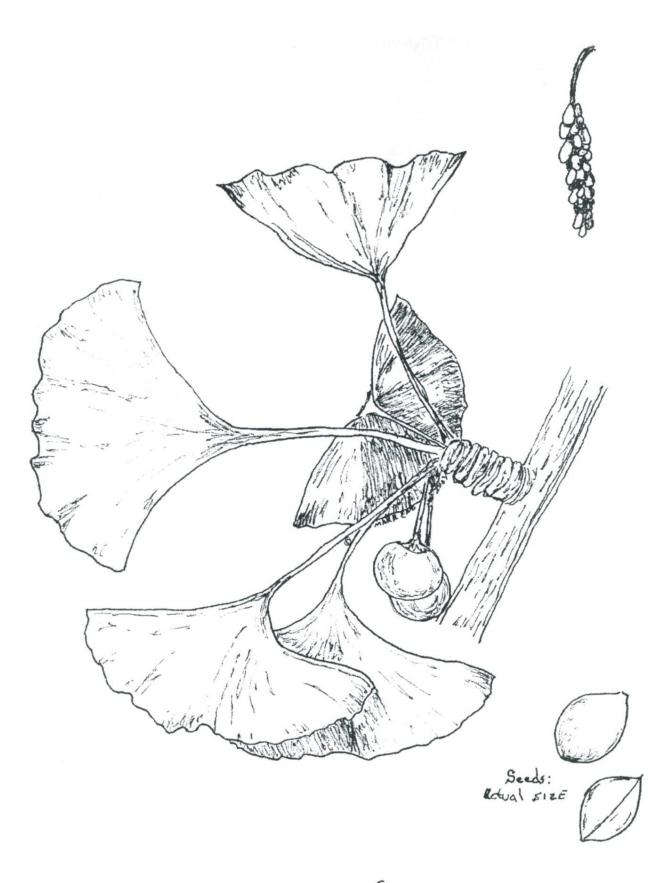
# **PLANTING**

Seedlings in 1 - 5 gal. pots can be put out any time of the year. For commercial production seedlings are set 1 - 2 ft. apart. Never let mature shrubs get any larger than 8 ft. tall or you may end up with 80 ft. trees. Ginkgo prefers a well drained soil, rich in fertility and full sun. It should be watered deeply occasionally when young but mature trees are very drought tolerant. It is also resistant to pests and diseases.

# HARVESTING

Ginkgo leaves are harvested in the fall after the tree has reached 6 - 8 ft. In height and is in good health the leaves should be turning yellow at the time of harvest. Cut the branches using pruning shears and pull the leaves off. Some Ginkgo growers harvest the leaves by waiting for them to fall from the tree. On a clear night in the early fall when there is a very hard frost nearly all the leaves will fall in one night the harvesters place large tarps under the trees and collect the leaves. The leaves are then sun dried the next day and bagged up for sales. This is a simple way to harvest Ginkgo, but by the time they have fallen, they have lost most of their medicinal constituents.

Harvested leaves can be sold fresh or dried. They dry in 4-7 days with a moisture content of 60 - 70 %



Ginkgo (Ginkgo biloba)

# GOLDENSEAL- (Hydrastis canadensis) RANUNCULACEAE

# DESCRIPTION

A perennial, 6 - 12 in. in height, found in deciduous, hardwood forests in eastern North America. One main stem forks into two branches. Leaves are deeply lobed with toothed margins, one leaf is usually the larger of two. After 3 years the plant blooms a single greenish-white, small flower with a cluster of sepals around the base. In May - June the flower develops into a raspberry-like fruit containing many seeds. The root or rhizome is bright yellow in color, thick and woody with several small rootlets extending from it.

# **PROPAGATION**

The easiest method is root division in the fall. An existing colony can be divided by carefully digging down beside the plant and sniping off a small piece about one-quarter inch long. This preserves the existing colony and provides planting stock for cultivation. It can also be propagated from stratified seed also planted in the fall. Spacing is at 6 in. with 12 in. between rows.

## **PLANTING**

Goldenseal grows natural in rich moist woods where an abundance of shade prevails, generally on north facing hillsides. It prefers wet, humus enriched soils with a pH of 5.5 to 6.5. Goldenseal must have at least 60 - 75% shade to thrive. Most growers in this region cultivate Goldenseal in its natural habitat but it can be field grown using shade cloth or lathe.

# HARVESTING

Goldenseal is harvested in the fall after 5-7 years of growth. Keep it in mind that the older the root, the larger the root. Never harvest Goldenseal from the wild, it is on the United Plant Savers "At Risk" list and is considered extremely rare, even more so than American Ginseng. Dividing wild roots for planting stock is the only acceptable practice. After the harvest, roots can be shaken free of debris and sold fresh or dried 5-7 days on screens.



# **APIACEAE**

# DESCRIPTION

Gotu kola is a tropical plant mainly grown for commercial production in India. Gotu kola grows 6 - 8 in. in height and has a vine like, spreading habit. Leaves are kidney shaped with serrated edges and are about 2 in. in length. It blooms in the summer with tiny, pink flowers that are somewhat hidden in the foliage. Gotu kola is a perennial that is hardy in zone 10, therefore it must be greenhouse grown or grown as an annual in our growing zones. The market is large and growing with buyers paying upwards of \$8 per pound for fresh leaf. Commercially grown Gotu kola is of very low quality so buyers are willing to pay for good quality, organic herb.

# PROPAGATION

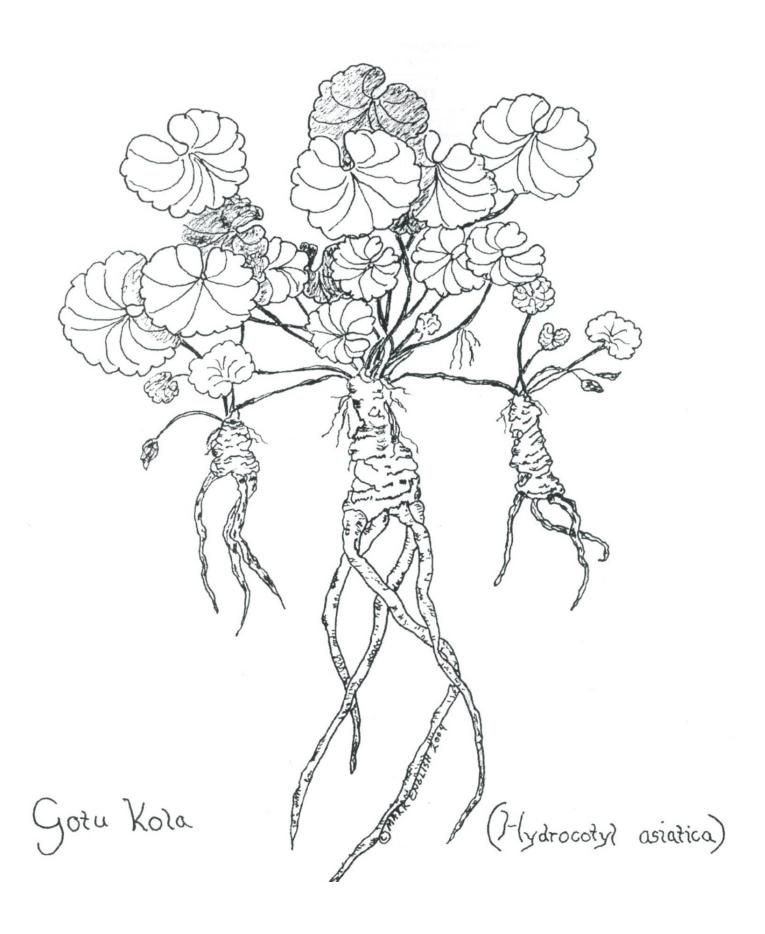
Gotu kola likes high temperatures of 70 - 90 degrees, seeds will germinate in 3 - 4 weeks. It can be propagated through cuttings and division. It must have a very moist environment. Seeds are best started in nursery flats. Cuttings can be taken any time of the year from the trailing vines. Remember that you must include at least two nodes on each cutting taken. Division is easily done by pulling up rooted sections of the plant but cuttings are easiest rooting in 4 - 6 weeks.

#### PLANTING

Gotu kola is a tropical plant and will die off if temperatures dip below 30 degrees. Seedlings can be transplanted in 10 - 12 weeks. Do not plant outdoors unless the soil and air temperatures have warmed up, usually late spring, early summer. Seedlings can be spaced 12 in. apart with 24 in. between rows. Gotu kola likes high humidity, lots of water and fertile, rich soil. It must be fertilized on a regular basis for commercial production. No disease problems to report although slugs can be a problem in the garden.

# HARVESTING

Leaves are harvested once or twice when grown in the garden as an annual but in the greenhouse several harvests per year can be done. When growing outside, roots can be harvested after the last cutting is taken. Pruning shears can be used to harvest leaves and roots should be dug and cleaned.



COMMON NAMES-- Mayblossom, Thorn-Apple Tree, White Thorn

# **DESCRIPTION**

Deciduous, thorny bush to small tree. Native to Europe. Good hedging bush with loads of beautiful blossoms in May. The bright red fruits resemble tiny, hard, red apples and are harvested after the first frost. Hawthorn berries, leaf and flowers make an excellent cardiotonic tea or tincture, loaded with procyanidins. 1 - 3 in. curved thorns along branches. Leaves are alternate, fan shaped or ovate, 1 - 2 in. long with toothed leaf margins pointing forward. Flowers are white, small and flat in terminal clusters. Blooming flowers have an unpleasant odor later turning to clusters of red-black berries. Hardy to zone 3, hawthorn likes a slightly alkaline soil. Thrives in rich, loamy soil and will do well in full sun or partial shade.

# **PROPAGATION**

Easily propagated from seed in nursery flats but is a very slow grower. Most Hawthorn for cultivation is bought from nurseries at 3 years of age and transplanted. To propagate from seed, soak seeds overnight in fish emulsion or a seaweed -based emulsion and stratify for 3 months. This speeds germination but it can take 2 - 3 years for some seeds to germinate.

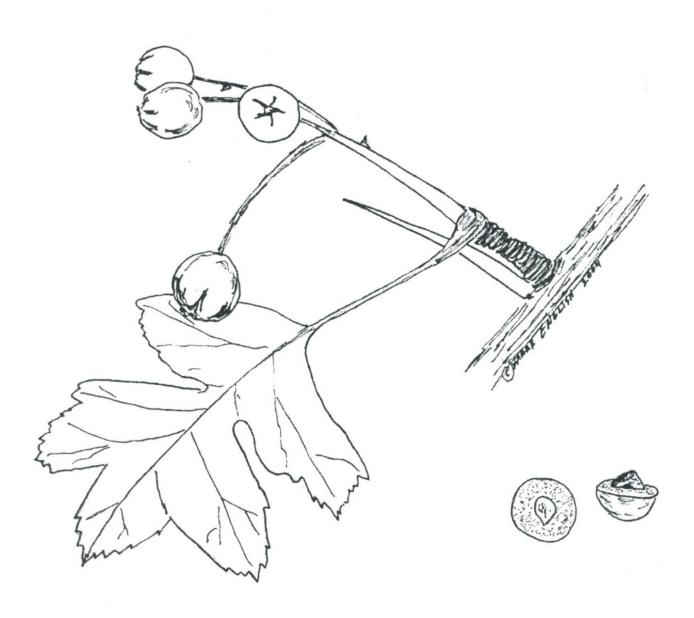
# PLANTING

Hawthorn grows in a wide variety of environments but for best results an alkaline soil that is rich and moist is preferred. It tolerates partial shade or full sun. A spacing of 3 - 4 ft. with 6 - 8 ft. between rows. Hawthorn can grow up to 15 ft. high and readily spreads so it needs lots of room. Early spring is the best time to plant transplants.

#### HARVESTING

Berries and flowering spring branches are harvested. Gather berries in the fall when ripe. Spring branches should be cut off at 8 - 12 in., no thicker than a pencil with plentiful leaves and flowers. Sold fresh or dried. Hawthorn is very important to wildlife and should be encouraged in woodlot areas for beneficial bird species. This shrub should be a part of all organic farm plans.





Hawthorn (Crataegus monogyna)

An erect perennial with a tapering, woody taproot; woolly stems; and several leafy branches. Marshmallow will grow to 4 ft. and can spread to 3 ft. Flowers are solitary or can have 2 - 3 together. 1 - 2 in. across and 1 - 3 in.wide flowers are white to pink blooming in the summer. Leaves are ovate, toothed, alternate, gray- green in color with velvety hairs covering both sides. The fruits are round, fuzzy and contain carpels with each carpel containing one seed. Marshmallow is a native of Europe and flowers from July through September.

#### **PROPAGATION**

A very hardy plant in this region, will grow for anyone. Directly sown or in the greenhouse, seeds will germinate in about 3 - 5 weeks. Transplants can be set out at 10 - 12 weeks. A few plants, if allowed to go to seed, will yield many starts that can be dug. The roots can also be divided in the fall of the year.

# **PLANTING**

Seedlings can be transplanted from late spring to early summer and root divisions planted in the fall. Spacing is 18 in. apart with 24 -30 in. between rows. Marshmallow likes a deep, rich soil and lots of water but for medicinal growing, areas of poor to adequate drainage is preferred. Marshmallow often does better following a cover crop and lots of organic matter. Marshmallow will thrive in full sun and needs to be kept well weeded the first year to reduce weed competition. No major pest or disease problems have been reported.

#### HARVESTING

Roots should be harvested in the fall of the second year. Roots harvested in the fall have a higher mucilage content than those harvested in winter or spring. Roots can be dug by hand or with a root digger, expect yields of 1000 - 1500 lbs. of dry root per acre. Roots can be washed, cut vertically and horizontally to to speed drying. Marshmallow roots are about 80% water so it will take 5 - 10 days drying time. Roots re-hydrate quickly so it is important to store them in a dry place.



Grows to 4 ft. in height and spreads to 2 ft. A thistle relative, the large leaves are spiny and thorny with milky- white, variegated veins. The purple flowers are up to 2 in. across and are followed by large black seeds with white hairs resembling Dandelion. Native to the Mediterranean, Milk Thistle is now naturalized on the west coast of the United States.

# PROPAGATION

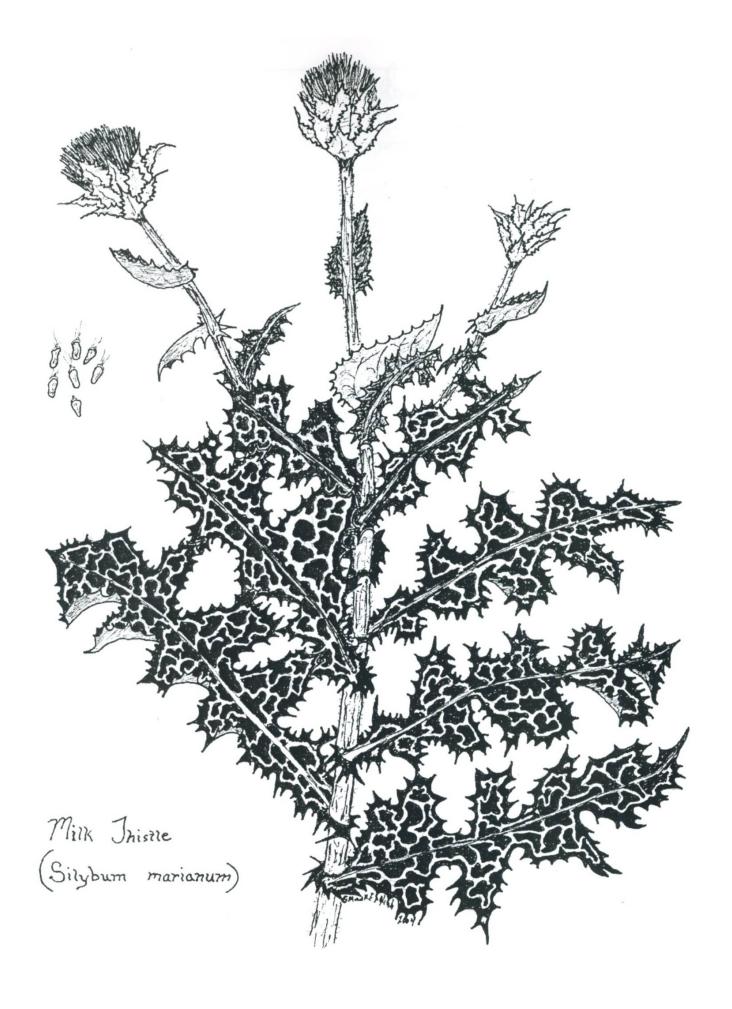
Direct seeding in beds is the preferred method but it can be grown in flats, buried about one-half inch deep. Seeds will germinate in 10 - 14 days and are ready for transplanting at 10 - 12 weeks.

#### **PLANTING**

Seeds can be sown outdoors in early spring or early fall. Seedlings should be planted as soon as the ground thaws. Direct seeding in the garden should be spaced 4 - 6 in. apart and thinned to 18 - 24 in. Milk Thistle is grown as an annual in this region and can stand the worst of soils and the most dry of conditions. Even with this in mind, a little compost makes for larger, healthier plants. Needs to be kept well weeded when young but will later smother out any competition. No pest or disease problems reported.

# HARVESTING

The seeds of the plant are what is used and are somewhat difficult to harvest due to uneven flowering of the plants in the field. Flowers are harvested by cutting the heads off when they have just dried up and are starting to develop the white, dandelion-like tufts. You will have to harvest every couple of days for a few weeks. The spines on Milk Thistle are very sharp so dress accordingly-- thick leather gloves, long sleeve shirt and pants, boots. Yields will average about one-quarter lb. of seed per plant which will give you about 2000 lbs. per acre. Allow 5 - 7 days drying time.



Grows up to 5 ft. with a spread of 2 - 3 ft. Leaves are dark green in color and deeply toothed, opposite, heart shaped with hairs covering. These small stinging hairs are known to cause contact dermatitis. Tiny green flowers hang in clusters and bloom in summer. Roots are yellow and creeping, reproducing from shallow roots found in dense patches. Nettle is a native of Europe but is naturalized throughout North America.

#### **PROPAGATION**

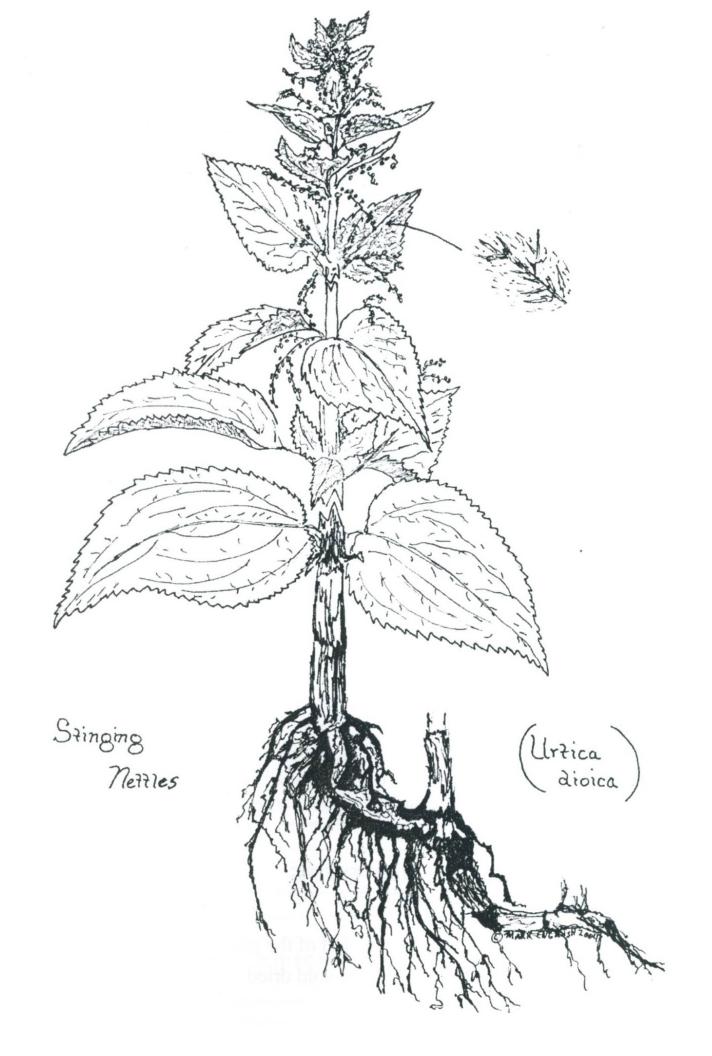
Nettle is best propagated by directly sowing seeds in growing areas. Can also be grown in nursery flats. Seeds will germinate in 10 - 15 days and can be transplanted in 8 - 12 weeks. Root cuttings can be taken from mature plants in the fall. Take root cuttings, about 5 in. long and plant 1 - 2 inches deep.

# PLANTING

Nettle is somewhat finicky, it is found in moist areas like along stream banks where it can spread without drying out. Seeds are directly sown or transplants set in an area as close to native habitat as possible. This is done in the spring with root cuttings planted in the fall. Plants should be spaced at 12 in. with 25 in. between rows. Nettles like a soil pH of 6.0 - 7.5 and will tolerate sun or partial shade. No pest or disease problems reported.

# HARVESTING

For leaf harvest, the stalk is cut just above the ground in the second year. The harvest is done just prior to bloom in early summer and can be repeated up to 4 times in one season. Never gather nettle leaf after blooming, gritty particles called cystoliths, can irritate the kidneys. Roots are harvested in the fall of the second year. Always leave some of the root to keep your patches growing. Roots are dried on screens and leaves left on the stalk can be dried on screens, stripping the leaves off after they are dry.



A perennial, dioeceous woody vine, native to Manchuria, Malaysia, Korea, China and Japan. The very aromatic pink or white flowers give way to a bright red fruit which droop in clusters from the vine. The five flavored fruit or Wu wei zi is said to look like grapes. Used in Chinese medicine as an immune-enhancing herb, anti-hypertensive, cough remedy and aphrodisiac.

# **PROPAGATION**

Easily propagated from seed in flats in the greenhouse or can be propagated by root cuttings from established vines. Seeds should be soaked in a seaweed or kelp based fertilizer for 24 hrs. prior to planting to speed germination. Seeds should germinate in 7 - 10 days and are ready to transplant in 4 - 6 weeks. Root cuttings should be taken in the spring and planted as soon as possible.

# **PLANTING**

Transplants and root cuttings should be grown on a trellis or other support system spaced at 8 in. with 24 in. between rows. New shoots emerge from the base of the plant each year but is not known to be a traveler. Schisandra bears on old wood so pruning should be kept to weeding out dead vines only. Schisandra prefers full sun to partial shade, a pH of around 6.5 and is considered hardy in zone 5 and above.

# HARVESTING

The ripe berries are harvested in the fall of the year and sold fresh or dried on screens and sold dried



Siberian Ginseng is a woody perennial with spiny stems and blue-black berries, native to Korea, China and Siberia. Similar to American Ginseng it is an adaptogen. The root is used to help adapt to stress whether physical, mental or environmental. It grows in the wild on cold northern lakeshores and woods in rich soil with plenty of water.

# **PROPAGATION**

This one requires extra care due to it being a multi-cycle germinator. In spring or fall the dry berries are soaked overnight in a seaweed or kelp based product. After soaking, the seeds can be removed from the pulp and sown in flats left in the shade or in the woods with plenty of moisture. Can take several years for all the seeds to germinate.

#### **PLANTING**

Transplants can be planted in the woods in a spot with at least 80% shade and close to a creek bed if possible, Siberian Ginseng requires plenty of moisture. At this time we know of no one growing Siberian Ginseng in a field environment. Transplants can be planted in spring with a spacing of 2 - 3 ft.

# **HARVESTING**

It is the large bulbous root that is used medicinally. Some wild roots are known to be up to 12 lbs. in weight and the tops can grow to 12 ft. in height.

We have never been successful at cultivating this plant. Many other nurserymen have informed us this is a very difficult plant to propagate with germination rates of under 10% and little survival at transplanting. It seems for now, until more is known about its life cycle, it is best to purchase plants from a greenhouse or supplier.



COMMON NAME-- Chaste berry

# DESCRIPTION

A deciduous shrub growing from 6 - 8 ft. in height with a spread of up to 15 ft. Leaves are palmate with 5 - 9 leaflets about 4 in. long, dark green in color on top and grayish underneath. In the summer small flowers bloom on long spikes that eventually turn into little reddish-black berries. The plant is very fragrant especially the flowers and fruits. There are numerous species especially in the U.S. but, agnus-castus seems to be the most popular for medicinal production

# **PROPAGATION**

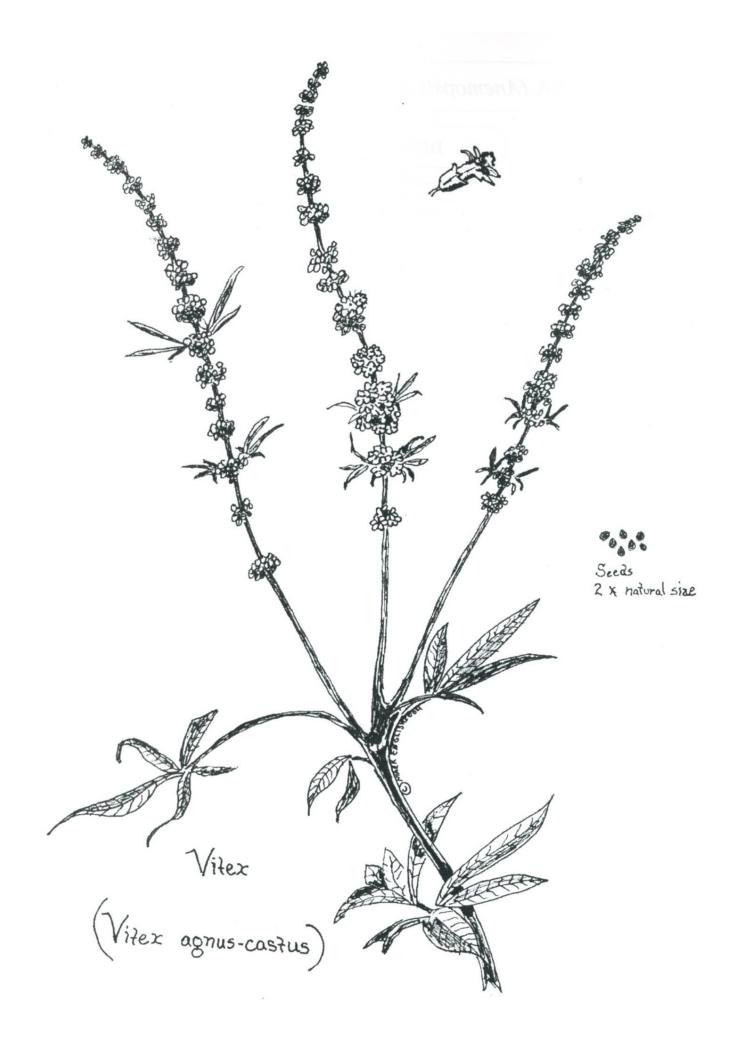
Grows extremely well from seed or cuttings. Seeds will germinate in 18 - 28 days and cuttings will root a little faster. Cuttings should be taken in June before flowering and root very quickly with bottom heat. Seedlings and cuttings should be transplanted at about 8 weeks.

#### PLANTING

6 in. - 1 gal. pots are preferred for transplanting to and kept in the pots for a year to gain some height before setting outside. Plants can be set outside in summer through fall. This shrub is hardy to zone 6, in a zone 5 it can be grown as long as it's heavily mulched in winter and protected from harsh winter winds. Vitex will thrive in full sun or partial shade. It is best to keep shrubs trimmed to 6 ft. to make harvesting easier. No pest or disease problems reported

# HARVESTING

The fruit is harvested in the second or third year and will produce for about the next 100 years. The fruits are allowed to dry on the plant and harvested by stripping the berries off by hand. The harvest must be done before the fall rains set in or this will decrease the quality of the fruit.



A creeping perennial with basal leaves 3 - 6 in. long, green until winter then turning red. The white flowers bloom in large sword -like spikes that are very unusual. The plant will spread profusely, spreading above ground and from the root nodes. The entire plant is very aromatic and although it is native of desert environments, it thrives on water.

# **PROPAGATION**

Will grow from seed, cutting or division. Seeds will germinate in about 4 weeks provided bottom heat is used. Seedlings can be set out at 12 weeks. Cuttings taken in spring will root in 2 - 3 weeks and can be planted at 12 weeks. Division can be done in early spring.

#### **PLANTING**

Seedlings can be planted in late spring along with divisions taken at about the same time and planted. Cuttings are also planted at this time. Spacing is at 12 - 18 in. with 24 - 30 in. between rows. Yerba mansa is a hardy perennial in zone 6 and above that thrives in a soil pH of 6.5 - 8.0, full sun and plenty of water. The first year it requires heavy weeding but after the runners will smother weeds if trained to stay in beds. No pest or disease problems reported.

# HARVESTING

The roots are harvested in the fall usually by hand. The more mature plants should be harvested leaving the younger ones for future harvests. Note-Yerba mansa is on the United Plant Savers, "To Watch" list, so cultivated roots should be marketed only. Roots are harvested after the third year and can be washed, dried on screens or sold fresh.

