Hypericum prolificum:

The Perfect Cold-Hardy Wildflower Hedge for your Butterfly Garden

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Executive summary

Hypericum prolificum, more commonly known as Shrubby St. John's Wort, is a newly sold *Hypericum* species native to North America that is ready to be a star on the ornamental shrub market. Due to its high adaptability to a wide range of soils and ability to overwinter in the coldest of climates, *Hypericum prolificum* is an excellent option to include as a natural pollinator in your garden. Compared to other species of *Hypericum*, *Hypericum prolificum* is known for its showy flowers, that produce far more stamens and are larger than related species. Furthermore, *Hypericum prolificum* stands apart from related species through its lignified base, allowing it to overwinter in a much wider range of climates. *Hypericum* has been used throughout human civilization for its medicinal properties, which have been attributed with anti-tumoral and anti-depressant properties. While research is still needed to identify the true medicinal benefits of *Hypericum prolificum,* it is known to contain high amounts of the chemical hypericin, which allows it to naturally fend off deer and other garden pests. *Hypericum prolificum* is a perfect shrub for beginner gardeners, and minimal care is needed for these shrubs to thrive. This review covers the best production practices for greenhouse production of *Hypericum prolificum,* as well as a product information guide.

I. INTRODUCTION

A. Hypericum prolificum, Shrubby St. John's Wort

Hypericum prolificum, commonly known as Shrubby St. John's Wort, is a deciduous perennial shrub that is an ornamental landscapers dream by attracting pollinators and warding off predators. Native to the Eastern half of the United States and Canada, Shrubby St. John's Wort is on the ornamental garden market and ready to fulfill its potential here in the United States and elsewhere globally, where it has previously been in the shadow of the highly invasive Common St. John's Wort (*Hypericum perforatum).* (Martin, 2021)

B. Taxonomic Classification and Geographic Distribution in the Wild.

Hypericum prolificum belongs to the Hypericaceae, which similarly is referred to as the St. John's Wort family (Hilty,2018). *Hypericum prolificum* is named for the "prolific" number of stamens in which it produces in mature flowers. The shrub is native to the Eastern United States, with its native range stretching as far south and west as Texas and Oklahoma, and as far north as Ontario and New York State (Martin, 2021). In more recent years, *H. prolificum* has been found in the upper northeastern states such as Maine and Vermont, however it is not technically native to this region (Hilty,2018).

Hypericum prolificum has a slightly larger, more shrub-like growth stature compared to other species within the genus, usually growing between 90-150 centimeters tall and 60120 centimeters in width (Hilty, 2018). It is, however, capable of growing and spreading its roots through underground rhizomes to spread within a small area. The main

distinguishing feature for *H. prolificum* is its woody base and root system, which sports a grey-brown bark color (Hilty, 2018). The upper stems are more herbaceous, with green color and are winged on each side. Its leaves have an opposite arrangement and a linear oblong to linear elliptic shape. (Hilty, 2018).

Hypericum prolificum flowers during mid-summer and the flowers remain between late June and late August (Martin, 2021). The flowers are found at the terminal end of the vegetative branches in clusters of 3 to 7. The flower is perfect with a diameter of just around 4 centimeters and consists of 5 yellow petals, 5 much smaller green sepals, a pistil in which the ovary is formed by 3 stigmas which are formed by 3 united stigmas, and numerous stamens surrounding the ovary. In the fall, the flower is replaced by a capsule fruit, which splits upon maturity and releases seeds. (Hilty, 2018).

Shrubby St. John's Wort grows best in full sun but can withstand light levels up to part shade. In the wild, it is mostly found in dry, rocky soils or alongside riverbanks, although it is adaptable to a wide range of environments and has also been found to be drought tolerant. (Hilty, 2018).

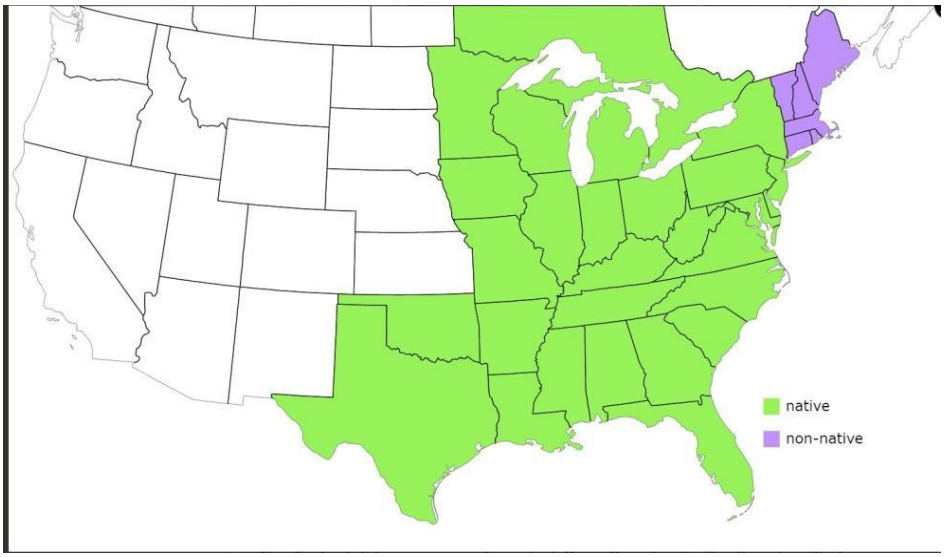

FIGURE 1. A map of the United States with the native range of *Hypericum prolificum* shaded in green, and the non-native range shaded in purple (https://plants.usda.gov/home/plantProfile?symbol=HYPR).

FIGURE 2. An image of a dormant *Hypericum prolificum* plant and the distinct woody base that is unique to this species within the genus (https://anps.org/2019/07/30/know-your-nativesshrubby-st-johns-wort/).

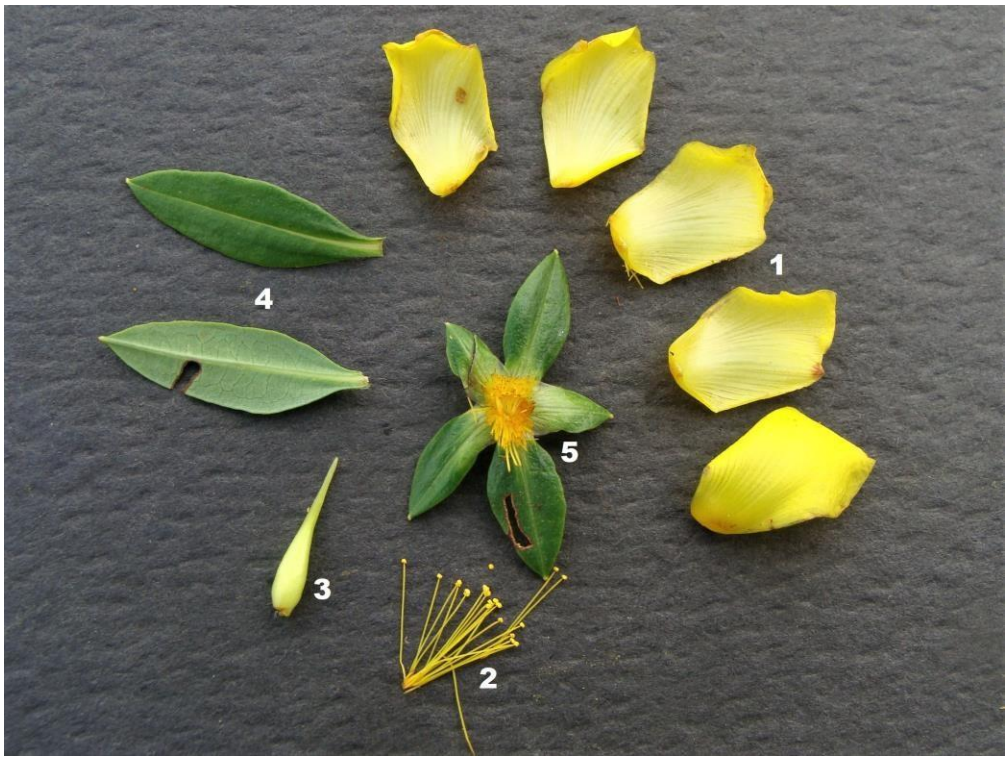

FIGURE 3. A dissected *Hypericum prolificum* flower which shows (1) petals, (2) a collection of stamens, (3) the pistil, (4) leaves from just underneath the calyx, and (5) the calyx and stamens (https://anps.org/2019/07/30/know-your-natives-shrubby-st-johnswort).

II. CROP SPECIES

A. History and Potential Uses.

While shrubby St. John's Wort has been documented as a known species since the early beginnings of plant taxonomy, there is very little information out there about its

horticultural and ornamental uses until much more recently. However, other *Hypericum* species have been used as herbal and medicinal remedies since ancient Greece. In fact, the name *Hypericum* comes from the original Greek name for the shrub, *Hyperikon.* It was often given to patients by doctors as a wound healing herb, a cure for menstrual disorders, or even to use as a spiritual guardian protecting patients from demons and evil spirits (Klemow et al., 2004).

Hypericum was continually used in civilization as an herbal remedy throughout the Middle Ages when it also began use as a cure for depression. To this day, St. John's Wort is highly sought as a cure for depression and other mood disorders (Klemow et al., 2004).

While *H. prolificum* is not an exact replicant of the more renowned *H. perforatum* which is currently used to make modern herbal mood remedies (Klemow et al., 2004), *H. prolificum* is similar in that it contains the pigment hypericin (Miskovsky, 2002). Hypericin is a secondary compound which can have toxic effects on mammals, making *Hypericum prolificum* an excellent deer repellant in one's home garden (Miskovsky, 2002; Arkansas Native Plant Society, 2019). It has further become increasingly shown that *Hypericum prolificum* contains many similar antibacterial and potentially antitumoral compounds similar to *Hypericum perforatum*, however this research is rather novel and there is no current use of *Hypericum prolificum* as a medicinal remedy (Sarkisian et al, 2011).

Furthermore, due to its numerous stamens and the copious amount of pollen in which *H. prolificum* creates, it is also a fantastic pollinator (Hilty, 2018). Butterflies and moths often visit Shrubby St. John's Wort in search of nectar; however, it produces none,

though this does not seem to deter nectar seeking butterflies due to *Hypericum prolificum*'s resemblance to other nectar producing shrubs (Hilty, 2018).

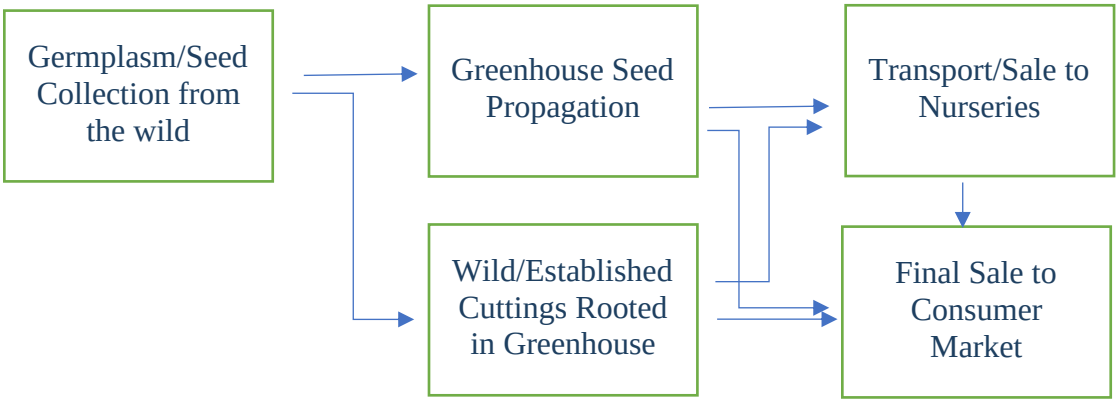

FIGURE 3: A proposed Horticultural Distribution chain for *Hypericum prolificum*, where germplasm and seeds are collected from the wild, propagated in greenhouses, and finally sold to nurseries and end consumers. (B. Good, 2023)

III. PRODUCTION INFORMATION

A. Anticipated Cultural Requirements.

Hypericum prolificum is an incredibly easy perennial shrub to grow and perfect for beginner gardeners! *Hypericum prolificum* is available to buy on the market as seeds or as small vegetative cuttings, the latter being a more popular option. Seed packets are currently available on the market for $3.95 for a packet of 200 seeds (American Meadows, 2023). A transplant, on the other hand, will cost slightly more at $4.95 (Northeast Pollinator Plants, 2023).

When growing from seed, *Hypericum prolificum* is very easy to germinate. It requires no light and seeds only need to be lightly covered by the soil

(approximately 1 cm deep) (Arkansas Native Plant Society, 2019). Seeds generally do require stratification before planting. When sowing directly outside, it is best to sow seeds in the fall/winter to allow seeds to naturally stratify before germinating in the spring (Arkansas Native Plant Society, 2019).

When cultivated in a greenhouse prior to planting, *Hypericum prolificum* can be planted indoors or in a greenhouse setting 4 to 5 weeks prior to the final frost of the season. *Hypericum prolificum* can be easily germinated using a 288 sowing tray and should reach full emergence within 1 to 2 weeks after sowing. Seedlings can then be translated to a 3.5" pot or larger to allow for ample growth before being transplanted outdoors. *Hypericum prolificum* seedlings have a fibrous root system, allowing for plants to be easily transplanted.

In nature, *Hypericum prolificum* is found to tolerate a wide variety of soils, including dry rocky sandy soils, but can tolerate wetter clay soils (Hilty, 2018). While *Hypericum prolificum* can grow easily in full sun as well as part shade, planting in full sun will generally lead to more and larger flower blooms (Arkansas Native Plant Society, 2019). However, a light afternoon shade can help prevent photosensitivity, which could also lead to a decrease in flower blooms. Therefore, part shade is recommended in hotter climates, such as USDA zones 8 and 9 (North Carolina State Extension, n.d.).

Towards the end of the first growing season after being transplanted or sown outdoors, the short stems of *Hypericum prolificum* will begin to lignify (Arkansas Native Plant Society, 2019). This allows *Hypericum prolificum* to withstand colder temperatures than similar species, as it will prepare for its first flower blooms in the second growing season (American Meadows, 2019).

FIGURE 4: An image of newly transplanted *Hypricum prolificum* seedlings in a 3.5” square plastic pot (B. Good, 2023)

As the shrub continues to spread and grow, *Hypericum prolificum* can be pruned over the winter month to promote a higher density of blooms in the next growing season. A grower just simply needs to detach the non-lignified growth from the

previous growing season, promoting vegetative growth in the following growing season.

Hypericum prolificum can have several potential roles on the market. Its spreading structure and showy flowers allow it to potentially be a small border hedge and can additionally serve as an attractant to different pollinators.

B. Market Niche.

Hypericum prolificum is a new crop ready to excel on the ornamental flowering shrub market. *Hypericum prolificum* transplants should be ready for the market by Mother's Day, if not slightly sooner in order to properly meet market demand.

For many years now, Common St. John's Wort, *Hypericum perforatum*, has been widely available on the flowering shrub market. The medicinal qualities along with its showy flowers has made it quite popular over the years, however it's tendency to become invasive and it's hard to control growth habits makes the demand for *Hypericum perforatum* susceptible to newer crops. *Hypericum perforatum*, along with other species within the *Hypericum* genus, will certainly be the biggest competitors to *Hypericum prolificum* on the market. However, despite having established competition, *Hypericum prolificum* will soon show that it is the ideal ornamental flowering shrub for a home garden.

When comparing *Hypericum prolificum* to similar species within its own genus, there are several traits that set it apart. First, as mentioned above, *Hypericum prolificum* is one of the only species within the genus to have a lignified base. This allows *Hypericum prolificum* to withstand colder temperatures than related species. Also, unlike other species within the *Hypericum* genus, *Hypericum prolificum* does not tend to become

invasive (Arkansas Native Plant Society, 2019). While *Hypericum prolificum* does spread via rhizomes up to 90 centimeters deep in the soil, it is not listed as an invasive species anywhere in the United States or Canada and its root depth is significantly more shallow than similar species, such as *Hypericum calycinum,* can spread through rhizomes up to 150 centimeters underground. This makes *Hypericum calycinum* nearly impossible to eradicate once planted, and it is currently listed as invasive throughout parts of the western United States. While *Hypericum prolificum* does not have quite as deep taproots as other *Hypericum* species, its penetrating rhizomes do still aid the plant in drought resistance (Martin, 2021).

There are several specific reasons why Common St. John's Wort and other similar species have been popular on the ornamental market for so long: They are easy to grow, they are herbivore resistant, and they sport beautiful, showy yellow flowers. As already mentioned, *Hypericum prolificum* is chemically similar to other species of *Hypericum* in that it contains the chemical compound hypericin, which causes photosensitivity in mammals and protects them against deer and other garden pests (Miskovsky, 2002). *Hypericum prolificum* furthermore has very similar showy flowers to other species of St. John's Wort, but with significantly more stamens. *Hypericum prolificum* additionally has a longer flowering season than similar species, meaning growers would be able to reap the full benefits of *Hypericum prolificum* longer than similar species.

Hypericum spp.	Plant Height	Plant Width	Avg. Flower Diameter	USDA Zone Range	Bloom Time

perforatum	90 cm	60 cm	2 cm	4b-9a	June-August
prolificum	150 cm	120 cm	3.5 cm	3a-8b	June-August
punctatum	45 cm	<30 cm	1 cm	4b-9a	July-August
calycinum	45 cm	60 cm	7 cm	5a-9a	July-August

Table 1. A comparison of the size, USDA Zonal range, and bloom time of several species within the *Hypericum* genus. Compared to similar species, *Hypericum prolificum* shows to be a much taller, widespread shrub compared to similar species on the market. It also shows to have the longest flowering time, as well as the widest range of habitable USDA Zones (Martin, 2021; North Carolina State Extension, n.d).

Currently, there are no available production statistics for *Hypericum prolificum* available. However, the market for other *Hypericum* species has been established for centuries due to its history of use in human civilization. While production statistics for other *Hypericum* species on the ornamental market are similarly difficult to find, the market for *Hypericum perforatum* on the medicinal market was valued at $20.71 million in 2018. While there is not enough research into the medicinal qualities of *Hypericum prolificum* to insinuate a market for medicinal development, the name recognition of St. John's Wort should additionally aid in establishing a ornamental market for *Hypericum prolificum*.

IV. PRODUCT INFORMATION GUIDE (PIG) & CROP SCHEDULE

Plug Tray	Plug Time	Seed/Cell	Cover Seed	USDA Hardiness Zone	Fertilizer Application During Plug Stage
288	4 to 5 weeks	1	No	3b-9a	75-100 ppm N
Moisture Level	Seed Treatments	Soil Type	Days to Germination	Lighting per day	
Level 4	3 to 4 weeks stratification	Germination mix	14 to 28	16 hours	

Table 2: A product information guide for *Hypericum prolificum*, including scheduling for seed plug propagation (Pillon, 2014; Arkansas Native Plant Society, 2019).

Hypericum prolificum is a hardy shrub that can be commercially propagated in a variety of ways. Due to the lignified base of established shrubs, semi-hardwood and hardwood cuttings can be commercially propagated, in addition to being able to propagate via seed. For many growers, seed propagation may be the preferred option. Seed propagations are far less labor intensive. Additionally, propagating by vegetative cuttings requires growing space for several fully established *Hypericum prolificum* plants, which requires 3 to 4

years of growth and ample space. Nevertheless, growing semi-hardwood cuttings could be advantageous, as this would allow growers to sell a more established plant to consumers quicker than propagating via seed. There may also be financial incentive to do this, as more established *Hypericum prolificum* could be sold at a premium to consumers. In USDA zones 6 and warmer, *Hypericum prolificum* can be grown as an evergreen, creating the additional possibility of field planting in these climates. Based on the commercial grower's decision, the crop production schedules between seed propagation and vegetative propagation would vary slightly.

When propagating from seed, seedlings can be sown in a greenhouse 5 to 6 weeks before the final frost date, likely in March or early April when growing in the northern hemisphere. Stratification is necessary to break seed dormancy. This can be done by placing seeds into a refrigerator 3 to 4 weeks before sowing. Seeds should be sown into a 288-plug tray using a well-drained, soilless germination media. Seeds should remain uncovered or barely covered by the germination media, as this was found by the author to considerably increase the germination percentage (60% vs. 96%). 70°F is the ideal temperature to promote seedling emergence. Keeping the seeds moist will additionally increase the likelihood of germination and emergence. Seedlings will begin to emerge two to three weeks after the sowing date.

After seedling emergence, they can quickly be transplanted to a larger growing container, such as a 3.5" x 3.5" square plastic pot. This allows ample space for the newly emerged seedling to develop a root system before being transplanted outdoors, and it is an easy size to ship and sell to market!

In order to propagate *Hypericum prolificum* via semi-hardwood or softwood cuttings, nurseries would need several established (at least 3 to 4 years old) *Hypericum prolificum* plants at their disposal. While some resources currently recommend taking semi-hardwood cuttings during the height of the summer (July to August in northern hemisphere**), I believe it would be most productive for growers to take semi-hardwood cuttings after Hypericum bloom in early autumn months** (September to October in northern hemisphere), as this would allow nurseries to propagate and develop cuttings indoors throughout the winter months, so they can be ready for sale on the market in early May.

Hypericum prolificum semi-hardwood and softwood cuttings can be taken when pruning established plants in the early to late fall. Cuttings should be approximately 4 to 6 inches in height and include 2 to 3 nodes from the plant. All blooms and lower leaves should be removed after the cutting is taken, leaving 2 to 3 higher leaves. The best cuttings should be taken lower on the branch, as the base of these cuttings should be lignified on established *Hypericum prolificum* plants. These lower cuttings, once rooted, can establish themselves quicker when transplanted outdoors and will be able to flower within the quicker than softwood cuttings or seed propagations. These semi-hardwood cuttings can be sold at a premium to consumers for this reason.

To induce rooting of softwood and semi-hardwood cuttings, take the bottom of the cutting and place it in a woody rooting hormone, such as Hormodin rooting compound. This will greatly increase rooting success, at little cost to the grower. After applying hormones to the bottom of the cuttings, place the cuttings into a 3-gallon container with 50% perlite and 50% pine bark soil conditioner (or another similar rooting

mixture), with several inches of spacing between each of them. This should allow for 10 to 15 cuttings to be placed in each 3-gallon pot (Pillon, 2014). Pots should then be placed in an indoor mist house to induce rooting most efficiently. Softwood cuttings should develop roots within 3 to 6 weeks, and semi-hardwood cuttings should develop roots in 4 to 8 weeks (or potentially longer). Once roots have properly developed, all cuttings can then be transplanted into their own individual pots to get ready for market (Pillon, 2014). I would recommend potting semi-hardwood cuttings into larger containers than softwood cuttings or seedlings, to further allow for greater root development from the lignified base. Semi-hardwood cuttings should therefore be transplanted into a larger, 3-gallon pot to be prepared for sale on the open market.

After transplanting seedlings or branch cuttings to their finishing pot before heading to market, it is imperative that they receive ample sunlight throughout the rest of the greenhouse production process. *Hypericum prolificum* is a long day flowering plant, and more than 12 hours of light is required each day to promote flowering and vegetative growth (Pillon, 2014). In *Hypericum prolificum* greenhouse production, it is recommended that young plants receive 16 hours of light per day. Once cuttings and seedlings have begun to establish growth, the tops of the branches can be pinched to induce branching. This will promote the growth of multiple stems closer to the base of the plant, which will lead to a denser, more prolifically flowering shrub in the future. Pinching can continually be performed to increase the density of the shrub.

FIGURE 5. Side by side images of newly germinated *Hypericum prolificum*. The image on the left displays newly germinated plants in a 288-plug tray, which are ready to be transplanted to a larger pot. The image on the right displays a transplanted *Hypericum prolificum* seedling (B. Good, 2023)

Growth Stage	Time in Growth Stage	Notes
Plug	4 to 5 weeks	Using a well-drained germination mix and maintaining high levels of moisture and humidity will increase germination %. 288 plug trays recommended.

Transplant to 3.5” pot	6 to 12 weeks	Can be sold to market at any point after plug stage, consistent N application (75 to 100 ppm per week) can aid in vegetative growth stage
Total Production Time	10 to 17 weeks	Seedlings should be sold to market in early summer to allow for a full growing season to establish growth outdoors

Table 3: Crop Schedule for greenhouse seed production. (Pillon, 2014)

Growth Stage	Time in Growth Stage	
Rooting Cuttings	Semi-hardwood: 4 to 8 weeks Softwood: 3 to 6 weeks	Rooting hormones should be applied to increase rooting success rates.
Transplant	Min. 4 weeks	Can be transplanted to 3.5” square plastic pot or larger, depending on softwood or semi-hardwood cutting
Total Production Time	Semi-hardwood: 8 to 12 weeks Softwood: 7 to 10 weeks	Cuttings can continue to be transplanted to larger pots as they continue to grow. Larger, more established plants can be sold to the market at higher prices.

Table 4: Crop Schedule for semi-hardwood and softwood cuttings. (Pillon, 2014)

Once *Hypericum prolificum* is established in an outdoor garden, it must be continually pruned at least every other year in order to promote flowering. Without pruning, flowers will only appear at the terminal end of all branches. Pruning will allow each branch to develop flowers along the entire branch, which will add to the showiness of *Hypericum prolificum* and increase its attractiveness to bees and other pollinators. Pruning can be done in the early autumn or winter months and is done by cutting off the

softwood part of the branches, leaving only the lignified portion of the plant. Pruning should not be performed in the first 2 years of growth, as the entire base needs to become lignified first.

FIGURE 6. A properly pruned *Hypericum prolificum* plant

(https://www.gardentags.com/profile/barbaramatthews/hypericum-hidcote/48551).

The flowers of *Hypericum prolificum* can be harvested for their medicinal properties. This is done in early fall, after blooms have begun to dry but before they fall off of the plant. However, while flowers can be used to make tea to extract potential

medicinal properties, the true chemical makeup and medicinal effects of *Hypericum prolificum* remain largely unknown, and more research into long term effects is necessary.

The established ideotype for *Hypericum prolificum* crops for consumers is a dense, showy shrub that has reached between 3’ to 4’ in height with an approximately equal or larger width. There should be many lignified branches coming from the base which all produce flowers along the entire branch, and not just at the terminal end. In addition to pruning and pinching plants to promote shot growth and flowering, growers must pay attention to the pH and nutrients of the soil in which *Hypericum prolificum* is grown. While *Hypericum prolificum* is capable of tolerating a wide range of pH, a pH between 6.0 and 7.0 is preferred to allow for optimal nutrient uptake. Furthermore, it is important to monitor the nutrients in the soil and make note of any fertilizers applied to where *Hypericum prolificum* is grown. A potential nutrient concern when growing *Hypericum prolificum* could be over application of nitrogen. While it is essential for *Hypericum prolificum* to receive ample nitrogen early in its lifecycle to establish vegetative growth, over application of nitrogen can lead to overly dense foliage on the plant and reduce the potential for flower blooms. Due to the natural soil tolerance and adaptability of *Hypericum prolificum,* it is not recommended that additional nutrients be added to the soil. However, in the case that *Hypericum prolificum* is experiencing

delayed flower bloom or overly production vegetative growth, then phosphorus and potassium fertilizers can be added to the soil to help promote flowering.

FIGURE 8. An image of a properly grown *Hypericum prolificum* shrub, with numerous branches coming from the base and flowers along each of the branches (https://www.bluestemnatives.com/product-page/hypericum-prolificum-shrubby-st-john-s-wort).

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