

Czerwinski, Luke

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## **The Market Mystery of the Chini Champa**

### **Executive Summary**

The climbing ylang-ylang vine (*Artabotrys hexapetalus*) is an intriguing new crop discovered on the continent of Asia. The plant grows to be very large and could be made into a visually appealing shade wall of big-leafed green vegetation with beautiful large, fragrant yellow flowers. The vine does not require any increase in work over the average vine ornamental. To follow, this plant has all the tools and ability to carve out its own space in the market. The flowers and continuous blooming features of the chini champa vine are key to unlocking its potential in the ornamentals industry. The vine also has value in the use of its flower oil. Use is found both in cosmetic and medicinal markets. The vine takes a long two years to mature before it will produce flowers and also contains a lower section full of thorns. This leaves a lot of room for improvement through the use of selective breeding of the ylang-ylang vine. The vine also produces a cluster of edible fruits after it reaches maturity; this fruit is eaten and used for tea in other parts of the world. All of the different features of this vine provide a great base set of tools to improve on before or after it is brought to market.

### **Introduction**

*Artabotrys hexapetalus* is a newly discovered species of *Artabotrys*. Currently, there are about 100 different species of *Artabotrys*. This specific species, *Artabotrys hexapetalus*, also goes by the scientific name of *Artabotrys odoratissimus*. There are a plethora of common names for this plant. Popular ones seem to be the climbing Ylang-Ylang, tail grape, Ylang-Ylang vine, and

chini champa. The Ylang-Ylang vine falls under the *Annonaceae* family, dubbed the custard apple family. This plant family consists almost solely of trees and shrubs. These different *Artabotrys* species are all a mix of woody trees and shrubs, with most of them having a tendency to climb. They fall under the order of *Magnoliales*, the same order from which the Magnolia tree comes. A surface-level look at the climbing Ylang-Ylang vines flowers yields some similarity to some specific cultivars of Magnolia trees.

### **Distribution**

The distribution of the Ylang-Ylang vine is throughout the continent of Asia, with some minor discoveries of different *Artabotrys* of the plant in tropical areas of Africa. More specifically, the plant resides in these countries: India, China, Burma, the Philippines, and Sri Lanka. Concerning the eight biogeographic realms, this species of *Artabotrys* is specific to the Indomalayan region. For those unfamiliar, the Indomalayan region spans south/southeast Asia and into the more southern parts of east Asia. The vines' natural habitat is the tropical forests throughout Asia, near the equator. This vine prefers these areas because of its need for large amounts of water, space, and only partial sun. This preference is very conducive to the growing environment of the tropical forest habitat. Along with this, it can be inferred the vine prefers high relative humidity, along with a high dew point. The wild plant is already somewhat spread out relating to where it's sold. The vine has even started to naturalize in some of the areas it has spread to.

### **Vine Features and Taxonomy**

The vine itself has a few unique and intriguing features. Not much info is available about the root system other than that it contains a very long taproot. The vine can be grown in pots, so the root system must be robust and hearty as the vine can reach up to 5 meters tall. The roots are the only part of the plant that resides underground apart from its seeds when they germinate. The leaves change throughout different growth stages of the vine, and some of the leaves are specific to certain parts of the plant (Posluszny and Fisher 2000). In general, the



Fig 1. Photo of *hexapetalus* leaves (Puri 2020)

leaves are a deep green color with a shiny wax-like surface look, alternating along the branches. Looking through different pictures of *hexapetalus*, the leaves vary in their shape. These shapes mainly being lanceolate, oblong, and elliptic with an entire margin.

The vine also flowers continuously throughout the year, with maximum flowering during rainy seasons. The inflorescence varies in the number of flowers it contains; it can be one to several. The flowers start as a smooth, lighter green, and as they ripen/open, they transition to a bright yellow, buttery color. The



Fig 2. Photo of *hexapetalus* flower (urbantropicals.com)

flowers are star-shaped and contain eight thick petals that resemble a lanceolate/linear shape. The contrast of the smooth yellow flowers to the deep green leaves is especially pleasing in terms of ornamental value (Posluszny and Fisher 2000, Chen et al. 2018, Chen and Eiadthong 2020). The flowers are also said to have a pleasant, fruity fragrance. The fruit of the Ylang-Ylang is an odd, roundish shape, with a light-green color, and produces its fruit in clusters off the shoots. These clusters slowly develop from the flowers that mature and develop further along the vine

(Posluszny and Fisher 2000). The fruits are not currently used in cooking but are edible and taste similar to a tart-sugarless mango. Along with that, the fruit also has a pleasant fragrance similar to the flowers. The fruits contain two larger-sized seeds on the inside.



Fig 3. Photo of *hexapetalus* fruit (Puri 2020)

Once the vine has reached maturity, it can be categorized into three sections. The thorny section at the bottom; this part offers the vine some extra protection. The bottom section is the only part

of the plan that is thorn-filled. These thorns start to dissipate as we get further up this part of the vine (Posluszny and Fisher 2000). By selectively breeding, the horticultural market might see the thorns removed from the plant. This removal of thorns would give it more value as an ornamentally-cultivated crop. Most people do not find thorns on the bottom of their houseplants as a preferable feature. Some people would surely opt to avoid the plant because it contained thorns. For this vine to reach a wider market, breeding out the thorns should be a priority. Above that, the

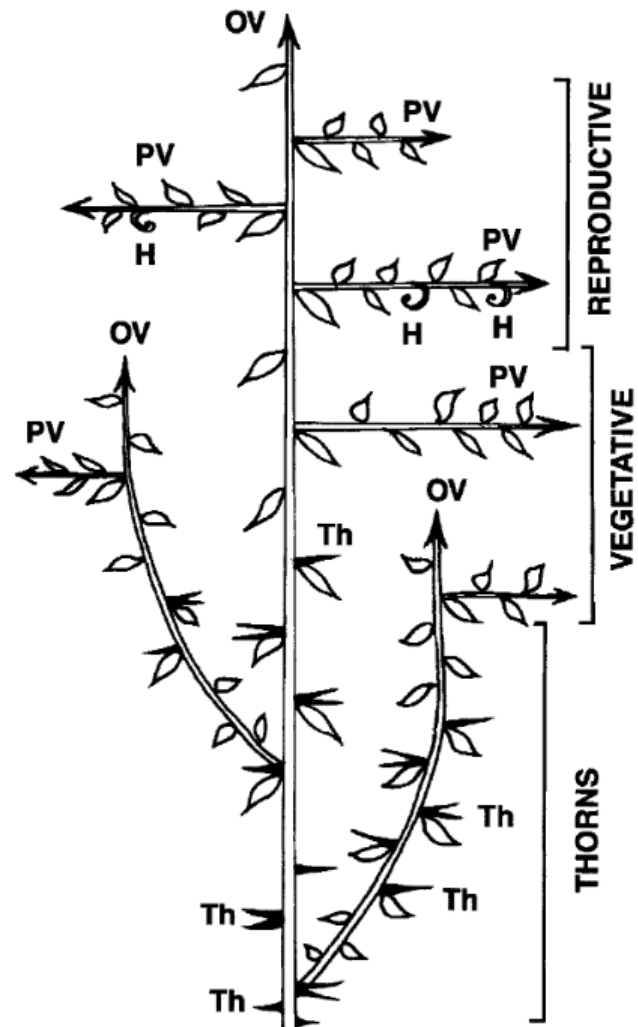


Fig. 4. Separated sections of a mature *Artabotrys hexapetalus* plant. Designating the bottom thorny part, middle vegetative section, and top reproductive section. (Posluszny and Fisher 2000)

middle section exclusively contains vegetative growth and does not have any thorns. The vine doesn't branch out until its tenth node above the cotyledons. It can start to branch at an even higher node, but this is all dependent on the specific plant and its heartiness/health.

The top, hook-filled section is pretty unique to the

Ylang-Ylang vine. This section of the plant has a

feature that is unique to most other plants. Along

these reproductive shoots, inflorescence hooks take the place of some of the alternating leaves

(Posluszny and Fisher 2000). These hooks are utilized by the plant to latch onto the

surroundings. This feature adds structural support to an otherwise weak plant. In its native

habitat, the vine latches onto taller tree branches. In a personal garden, this would need to be

solved by using a trellis or stake of some kind. The vine can get so big that a trellis might be the

best and most aesthetically pleasing solution while also being fully functional. Once one of these

inflorescence hooks grabs onto something to get support, the hook hardens and becomes woody,

furthering its grasp and asserting that it will stay where it is. After one of these hooks has gone

through this process, no more flower buds will develop on this part of the plant. The Ylang-

Ylang vines shoots are not inherent to a distinct type of growth either. Shoots from the vine can

form a thorn, hook shoot, or regular vegetative shoot depending on what the plant decides it

needs on each section. The hooks can also form a new hook-type leaf. These leaves are rounded

and even thicker than the normal leaves. In the beginning stages, these leaves also form masses

of trichomes on their surfaces (Posluszny and Fisher 2000, Chen et al. 2018, Chen and Eiadthong 2020).

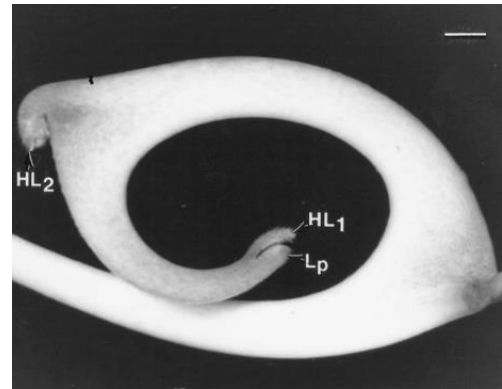


Fig. 5. Photo of one of the *Artabotrys hexapetalus* plants hooks and the attached hook leaves (HL) (Posluszny and Fisher 2000)

## **Medicinal/Crop Value**

The chini champas' flowers have value in tea and essential oils. The fresh flowers can be picked and steeped in hot water to provide a floral flavor and fruity smell. The Ylang-Ylang essential oil is also in high demand. It has a very fruity fragrance that many people seem to like. It is marketed as also having romantic value. The medicinal value of this oil is that it can help alleviate stress/anxiety and cause relaxation by the chemical reaction that happens once it is put on skin (Tan et. al 2015). It also reduces high blood pressure, inflammation, kills bacteria and lice (Tan et. al 2015, WebMD 2020). Outside of medicinal value, the oil also has value as a mild insect repellent and sexual harmonizer (Tan et. al 2015). The demand for this oil is understandable as added to all of these properties, it is natural and has a fragrant smell.

## **Current Affairs Within the Market**

It does not seem that this plant has been domesticated yet, and if it has, it doesn't seem that it has been done well. One can buy the seeds of the vine for pretty high prices, but it seems that they are just wild-type vine seeds. When finding these listings online, there are no specific cultivars listed which furthers the belief that only wild plant seeds are available. Ylang-Ylang vines can also be grown in pots outside. This ability is good for the commercial marketing of the plant. The vine would be seed propagated as seeds are easy to come by, and the plant is pretty hearty once the seed germinates. There seems to be a massive amount of room for growth regarding breeding this plant for ornamental value. A couple already ideal features of this plant is its large amount of desirable fragrance, continuous blooming, ability to be grown in a pot, pretty flowers, and visually appealing foliage. Through breeding, the new plants could be selected for a smaller/more condensed size, along with features that maximize their fragrance and flower

features. One thing that will need to be watched for is how its invasiveness will affect the market. If it becomes invasive in certain areas it will lose all of its value along with causing environmental harm.

### **Life Cycle within a Growers Greenhouse**

When preparing the Ylang-Ylang vine for commercial marketing, it is important to consider the fact that it is a very fast-growing herbaceous perennial. This is not a crop that is meant to be planted during the spring/summer season and then disappear as it dies over winter. It is important to note that this vine will need to be brought inside for harsh winters, it will not survive heavy frost. After an outside winter, a portion of the plant will have died back. Once spring rolls around, it will be important to prune the vine so that it can continue to grow properly. Removing the dead parts of the vine is also important from an aesthetic perspective. If the vine is planted in a place with a winter season that does not hit frost, this last step will be unimportant as it won't die back. However, it will need to be managed a bit more as it will grow a lot faster if it has a full year of ideal weather. It will take a lot of proper management/trellising and effort to keep this vine as a healthy ornamental. It will also require lots of space and some form of a trellis to fill out. If it is all done correctly, this plant could provide a great-looking shade vine for the landscape.

### **Plant Characteristics**

The ylang-ylang vine has a lot of unique characteristics that could make it versatile within a garden. It offers a lot of utility in being able to do a lot of things. The first and most obvious use would be to let it fill out an entire wall, whether it be for the purpose of a privacy partition or

basic aesthetics. A plant that could be used somewhat interchangeably would be a climbing rose. Both the climbing rose and Ylang-Ylang vine grows similar enough that anything one would be good for, the other would also be good at. Also similar to the rose, Ylang-Ylang vines can be grown in pots. This opens up the possibility to keep it inside in a sunroom, or just place it in the corner somewhere to take over. The Ylang-Ylang's value comes from both its beautiful leaves and fragrant yellow flowers. One would most likely not be able to see its flowers until it has spent some time in the landscape. It will be important to market this plant with pictures of its flowers as it will more than likely not have any at the time of purchase.

### **Winter Potential**

As briefly mentioned before, this plant can mildly tolerate the winter season. It is estimated that it will continue to grow until about 5 degrees Celsius (41 degrees Fahrenheit) (Manner and Elevitch 2006). It will die if it is put through a winter of heavy frost. This still gives it a lot of room for the vine to continue to thrive throughout most areas of the United States. However, this plant is specific to zone 10 of both the USDA hardiness and heat maps. As proof of this, the average annual temperature for this plant is 18-28 degrees Celsius (64-82 degrees Fahrenheit) (Manner and Elevitch 2006). A challenge that many customers may face is the vines' dry season normally only lasts around 2 months. For it to continuously fruit and flower, it needs to be grown for a minimum of 2 years and have access to lots of water (Posluszny and Fisher 2000, Manner and Elevitch 2006). Over time, vines may be selected for earlier maturation and flower set but the Ylang-Ylang vines market is nowhere near that right now. It will take some time before we see a more ornamental-friendly version of this crop.



## **Production Environment and Propagation**

When bringing this vine to market, propagating by seed will not be a viable option. In a study about this species' seed germination and morphology, the first seed didn't germinate for 159 days and the last for 238 (Handayani 2017). There is no way it will be profitable to keep these as seeds only to have to wait nearly half a year for them to germinate. It will need to be propagated by cuttings or tissue culture, both of which should be easy enough for any major plant supplier. The Ylang-Ylang vines' ideal growth conditions are conducive to that of a normal/average greenhouse. The plant can be grown in a regular or specialty soil mix but there is no need for anything specific other than having access to drainage. There has not been much research into the Ylang-Ylang vines' main predator pests. Some reported problems involve stem borer and insects that cause leaf wilt. Flower-eating beetles were a major problem, but the vines shouldn't ever get to the flowering stage before they are sold (Oyen and Dung 1999). There seems to be even less known about common diseases of the Ylang-Ylang so it will be important to pay close attention as the vines grow. It should be grown with full sun and ideally some supplemental lighting inside of a misted/high-moisture greenhouse; this is similar to the environment it is native to. Under the assumption it will be propagated by small cuttings or tissue culture, the vine can be started in size 50 plugs. It does grow somewhat fast so giving it some room to start with is important. It should take to the plugs well in a couple of weeks. After that, transitioning them to 4-inch pots will be ideal. A supplier could stop here and sell them once they start to fill out trays as small vines but this would cut out a lot of room for profit. After they take to the 4-inch pots, it would be worthwhile to transition them to single-gallon, branded, plastic pots that they can be sold in. Since this is a perennial that is not expected to be tossed away after a season or two, a higher price and more time/care are justified. There is no known photoperiod response so these

should be able to be put alongside any other plants that need similar growing conditions. Any type of topping/pinching is not necessary and it is not important to use plant growth regulators as the faster they grow, the faster they can be shipped out to make money. The vine doesn't flower until year 2 so it will not be necessary to try to stop it from flowering early. If it ever happens to become common for flower set to start early, it still wouldn't be important to avoid it because the vine flowers continuously and there are no physiological or aesthetic downsides (other than possible accidental pollinations). Avoiding these accidental pollinations also wouldn't be very necessary as the fruit is not too unattractive and the process of its fruiting will not take away from anything. Along with that, there is the upside of a prettier and more fragrant plant. This would only help its sales. In a very ideal way for most customers, this plant is pretty hardy apart from not having heavy winter tolerance. It won't require special attention outside of maintaining its shape and appearance.

### **Target Season**

If this vine were to need a season to be marketed with, spring would be the best. This is the time when it would be best planted in a landscape. It would have the entire year outside of winter to grow and mature before it hit the harshest season of its life. The Ylang-Ylang vine could certainly be plugged all year around. It has the utility to be marketed as an indoor potted plant while simultaneously being marketed for the landscape.

### **Limitations**

The ylang-ylang vine is not far from its limitations. It is important to mention its viability for invasiveness. The vine is now naturalized in some of the first places it was introduced. One of

the first things that come to mind is that Florida's environment is very similar to its natural habitat. Since not much is known about pests and diseases that help regulate its population, we should be cautious about introducing them into the market. It is hardy in its environment; along with that, its seeds are spread by small mammals so it very easily could naturalize in areas throughout the United States. It is too early to definitively say that it would be invasive in parts of the country but it is equally too early to say that it wouldn't. If it were to become invasive, nobody would want it as a house/garden plant and the market would be destroyed. Outside of invasiveness, the thorns on the lower third of the plant are a major factor of limitation. The thorns could have people with animals and children concerned about purchasing a plant that they deem dangerous. Some people may even be turned away by the thorns immediately. When studying the thorn and hook ontology, there was some minor variability in the thorn amount and placement on cultivated species (Posluszny and Fisher 2000). It is very possible that through lots of breeding, breeders could select out of the thorns or at least find a variety that is very low in amount. However, something like this would take an extremely long time and an amount of effort that might yield nothing. It was done before with roses. However, the market accepted the thorns because of the roses' value for show and beauty. Once the thorns were bred out, the roses' popularity got bigger and the market widened; although it should be noted that this was not solely due to the removal of the thorns. This whole situation will more than likely not be the case with the ylang-ylang vine. The vine may have no market out of the gate because of its thorns. The amount of time, money, and work required to remove them might mean it never becomes a viable candidate for a landscape plant. At the same time, the thorns are the only thing truly holding the plant back from a wide market. If it was possible to select them out quickly, or possibly utilize genetic engineering, then the plant could make growers a lot of money. To

market the plant as it is, its other features would need to be distinguished. The leaves, fragrances, and flowers are all very unique, and seeing this mix of characteristics will certainly leave some people with the need to add this plant to their collection, even if only to see and smell its flowers for themselves.

### **Competitiveness within the Market**

There are quite a few crops that the ylang-ylang vine would have to compete with. In Hawaii, this vine was classified as a good shade vine (Wong 2007). In the market of shade vines, the ylang-ylang would be forced to compete with the likes of clematis, trumpet vine, wisteria, honeysuckle, jasmine, bleeding hearts, passionflower, and pathos. These are some of the more notable ones but even in such a specific market, there is lots of strong competition. The ylang-ylang vine would be very late to market compared to some of these, as they have been selected/bred with ornamental value in mind over many years. It is important to ask if the ylang-ylang vine has the basic tools to compete in this market? The answer is assuredly yes. As stated before, the flowers have a welcomed combo of beauty and fragrance. These pasty yellow flowers also look great with the shiny/waxy deep green leaves in the background. If bred and selected properly, the vine can surely carve out a space for itself in the market.

### **Marketing**

There are lots of ways that companies could market this vine. They could go down many different routes, maybe focus on a specific trait or the special combo of all of them. Below, on page 13, is an ideal version of a short marketing excerpt that could be sent out once the plant is ready to be brought to market.

### Asia's Rare and Mysterious Climbing Ylang-Ylang Vine

Discovered halfway across the world, the beautiful and exotic vine known in other languages as the Chini Champa has finally arrived to be grown and sold throughout the United States. This vine has a myriad of characteristics that will truly make it a special piece to add to any collection. The driving force behind its beauty is its big and alluring yellow flowers that continuously bloom once the vine reaches maturity. These unique flowers come with a fruity fragrance due to the oils inside. These oils are known for their distinct, seductive smells and biomedical properties. The deep green, waxy leaves of the vine provide a great contrast to the bright, pastel yellow blossoms.



Fig 5. Photo of *hexapetalus* flower (urbantropicals.com)



Fig 6. Photo of *hexapetalus* flower (urbantropicals.com)

This vine will be sold as small vegetative propagules, meant to eventually be transplanted and sold in bigger plastic pots. The ylang-ylang vine has the utility of both smaller (1-gallon) pot sunroom growth and landscape use. However, it should be noted that this vine can get very big (15+feet). There shouldn't be any expectations of seeing flowers until it matures near year 2. Despite the long wait time, it will surely be worth it to get to see and smell these distinct flowers in person.

## Climbing Ylang-Ylang (*Artabotrys hexapetalus*)

<b>Life cycle</b>	Hardy perennial
<b>Family</b>	Annonaceae
<b>Popular Uses</b>	Outdoor containers, privacy wall, vegetative walls,
<b>Mature plant height</b>	4.5+ meters (15'+)
<b>Mature plant width</b>	1.5+ meters (5'+)
<b>Pot size</b>	4-inch pots early on, 1 – 3 gallon pots later
<b>Plants per pot</b>	1
<b>Sun exposure</b>	Full sun or partial shade
<b>Water requirements</b>	Above average, prefers wet conditions
<b>Flowering time</b>	Continuous passed maturity (2 years) if given adequate
<b>Media</b>	A well-drained media with good nutrient availability preferred
<b>Light</b>	Change of day length not required for flowering
<b>Growing temperature</b>	Temperatures above 5 °C (58 °F)
<b>Fertilizer needs</b>	Not required in landscape but early cuttings will benefit from a balanced N:P:K fertilizer
<b>Crop time</b>	2 years (cutting – flower)
<b>Hardiness zone</b>	Z 10 (Z 8/9 require extra attention)
<b>Recommended plug size</b>	50
<b>Cuttings per cell</b>	1
<b>Vermiculite cover</b>	No



Fig. 7 Ylang-ylang vine and fruit. ([https://commons.wikimedia.org/wiki/File:Ylang\\_Ylang\\_vine\\_01.JPG](https://commons.wikimedia.org/wiki/File:Ylang_Ylang_vine_01.JPG))

### Common Pests:

Stem borer, Flower-eating beetles, aphids, and spider mites

### Pinching:

Not needed or required

### Training:

The plant will need to be trained for form in some capacity after it grows to around 1 meter tall

## Climbing Ylang-Ylang (*Artabotrys hexapetalus*)

### Cutting Production

<b>Plant propagation form</b>	Cuttings and vegetative
<b>Recommended plug size</b>	50
<b>Cuttings per cell</b>	1
<b>Vermiculite cover</b>	No
<b>Production location</b>	Greenhouse or controlled environment
<b>Stage 1 Taking cuttings</b>	<p>Temperature 21-27 °C (70-80 °F)            EC 0.5-1 (50-100 ppm)            Give 3-4 weeks for rooting            Light necessary for this stage            Keep media moist            Keep humidity high            Make sure to take cuttings from the soft-vegetative section of the plant</p>
<b>Stage 2 Growth and development</b>	<p>Keep media moist            Keep temperature in the 21-27 °C (70-80 °F) range; allow for a normal lowering in night-time temperature            Continue to keep humidity high            Fertilize as needed</p>
<b>Stage 3 Transplanting</b>	<p>Once cuttings grow to 30 cm (1') it is time for transplant            Transplant into 4-inch containers            Use a well-drained media with high nutrient content            Add supplemental light to maximize growth if days are getting shorter            Water two times a day            Increase fertilizer intensity to an appropriate level            Keep temperature above 21 °C (70 °F)            Keep humidity high</p>
<b>Stage 4 Second transplant (If desired)</b>	<p>Once the vines have established themselves and filled out the 4-inch pots they can be transplanted again            Transplant into 1-gallon pots            Growing conditions same as stage 3            Some structuring to vines may be needed</p>
<b>Notes</b>	<p>Ensuring high humidity and adequate watering is integral to plants growth            Attentiveness to plant structure is also important, stake if needed</p>

## Climbing Ylang-Ylang (*Artabotrys hexapetalus*)

### Estimated Cutting Production Timetable

Stage 1	Stage 2	Stage 3	Stage 4	Total Time
3-4 weeks	4-6 weeks	4-8 weeks	4+ weeks	15-22+ weeks

## **Production Information and Crop Scheduling**

A guideline for a production information guide can be found above on pages 14 & 15. Most of the information in relation to temperature is a recommendation based on the zone the plant is hardy to (10), and its native habitat. The timeline is a very important aspect to take note of in the vine's lifecycle. The timetable is loose here because not much can be found about the specific timeline for most aspects of the chini champas growth cycle, so this is all estimated based on what is available (Posluszny and Fisher 2000, Manner and Elevitch 2006). The recommendation for a 50-size plug tray to use for the cuttings is very standard. This is about the smallest it can be with regard to making sure the plant has enough space to root and then grow to the next stage before transplant. From the cutting stage to the end, the vines will need to be grown in a greenhouse or some form of a heavily regulated light/temperature/humidity-controlled building/warehouse. High humidity and temperature are integral to keeping it growing well in its earliest stages of growth. Producing these plants outside is not a profitable option given all the time that would be required to keep them to an industry standard; they would grow much too big and become out of control if given too much space and light. The well-drained growing medium is standard, these plants crave water but the roots also need space and a lack of heavy restriction. The use of fertilizer is not discussed in any current information about the plants but it can be assumed that the vine will benefit from normal fertilization. If it looks like the plant is at a standstill, the fertilizer can always be turned off so it doesn't pool up in the pot and burn the vines. The timeline for this crop is a lot longer than normal annual/perennial crops. The estimated total time is not even enough to see the plant through to flower. It will still take another 1.5 years at a minimum before any flowers will be seen. There should not be any need for plant growth regulators at any point. Attentiveness to the vine's growth will be important



throughout the process, at some point, it will assuredly need to be staked and trained to look proper. The entire process should not require too much effort compared to other plants, just a little more time.

### *Shipping & Transportation Considerations*

Shipping and transportation may present a problem for smaller growers that lack the resources of bigger producers. Since it is recommended that these plants eventually be transplanted into 1-gallon containers, and staked for structure, they will take up a lot of space in a truck. At the last stage of the production guideline, the plants should also be producing thorns in the lower third of their vegetative growth. This will require some attentiveness from both the loader/transporters and unloaders. For any producers familiar and well-versed in rose production, there will not be any issues they are unfamiliar with. It is recommended that a producer who is already used to these types of thorny plants be responsible for the production of the ylang-ylang vine. For any producer unfamiliar, choosing this plant will pose a bigger challenge than something like a rose because of the lack of solid information regarding the plant.

### *Special considerations*

In case of a situation where a grower with fewer resources/space really wants to produce these plants or even similar plants of the same type, it would be recommended to stop production at stage 3. This way the plants can be shipped off in 4-inch pots. This will make it much easier and the profits will likely be higher if production is cut off at stage 3 as well. The speculation here is that the vast majority of people will not be familiar with this vine and will be more likely to take a chance on it if it costs less and has fewer thorns at the time of purchase. The benefit of the

bigger pots is having a fully established vine where the purchaser will be able to better envision the potential of what it can bring to their unique landscape. At either stage 3 or stage 4, pictures of the flower will need to be included with the tags as this is the major selling point of the plant. The scent and color of the continuously blooming flowers create almost the entirety of the allure of this plant and without it, it will fail to captivate prospective customers compared to all of the other incredible plants on the market.

### *Future Considerations*

A couple of future considerations can be made for this new crop. Any selective breeding done for this plant will do wonders within the market. It has a great base set of tools, but those tools can and need to be sharpened heavily in order to maximize its market value. Three major things that the vine could be bred for are: reduced or even zero thorns, earlier flowering, and a smaller form factor. Breeding in any of these directions would be beneficial to producers in relation to the resources used to produce the vine, and also the increase in profits that could be seen. Profits would be increased due to a larger interest in the plant as it would cover more basis in terms of reasons a person would choose to buy it; they would also be increased due to the decrease in necessary resources used to bring the plant from cutting to sale. Propagation by seed will never be a profitable option and it remains to be seen if the vine in its current state will be profitable enough to warrant its production and research into improvement. If in the future it is somehow possible to have each plant produce flowers before the sale in a way that is not detrimental to profits, it will do wonders for the interest and sales of the plant. The lack of flowers prior to sale is the major limiting factor to the mass production/sale of the ylang-ylang vine. More research into the use of the fruit and oil of the plant will also be important in the future. If the fruit can

ever be brought to market, even in the form of tea, it will give the plant more value. Ylang-ylang tree oil is already in its own category in the market, if the oil production is comparable to that of the tree, the ylang-ylang vine will become a better option for production than the tree due to its reduced size. Research into this area of the vine is integral to expanding its market beyond ornamental values; this option could also yield large profits.

### **Executive Summary**

The climbing ylang-ylang vine (*Artabotrys hexapetalus*) is an intriguing new crop discovered on the continent of Asia. The plant grows to be very large and could be made into a visually appealing shade wall of big-leafed green vegetation with beautiful large, fragrant yellow flowers. The vine does not require any increase in work over the average vine ornamental. To follow, this plant has all the tools and ability to carve out its own space in the market. The flowers and continuous blooming features of the chini champa vine are key to unlocking its potential in the ornamentals industry. The vine also has value in the use of its flower oil. Use is found both in cosmetic and medicinal markets. The vine takes a long two years to mature before it will produce flowers and also contains a lower section full of thorns. This leaves a lot of room for improvement through the use of selective breeding of the ylang-ylang vine. The vine also produces a cluster of edible fruits after it reaches maturity; this fruit is eaten and used for tea in other parts of the world. All of the different features of this vine provide a great base set of tools to improve on before or after it is brought to market.

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