

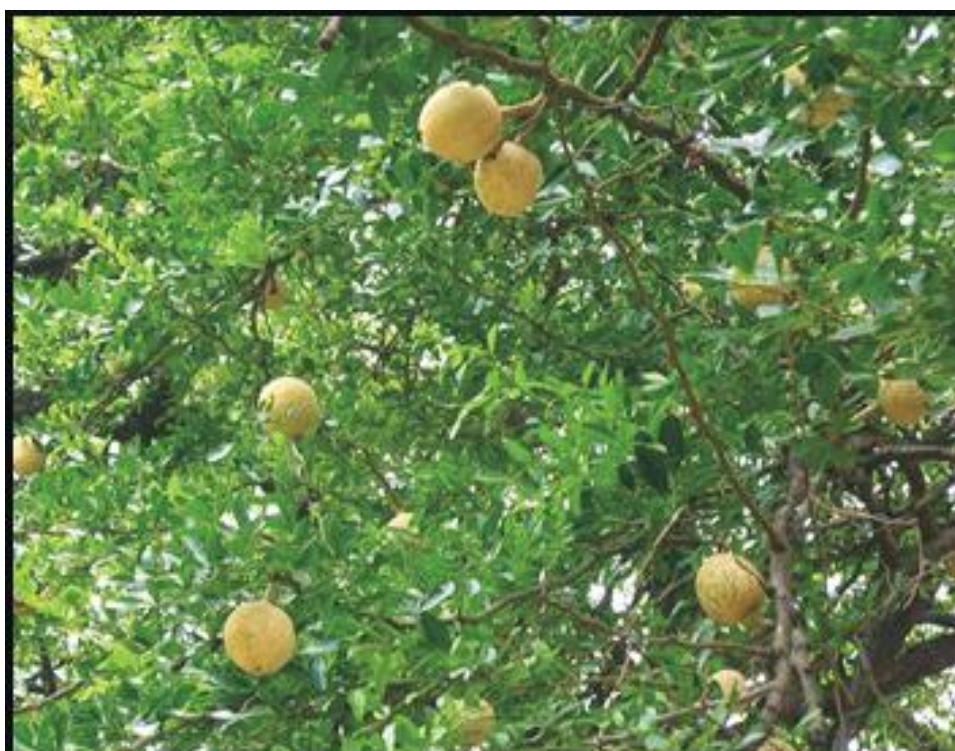


ENVIS NEWSLETTER



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STATE TREE OF PUDUCHERRY (VILVAM)



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ENVIS HUB CENTER

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State Tree of Puducherry

Aegle marmelos, commonly known as Vilvam or Bilubam in Tamil and Bael / Bengal Quince / Golden Apple / Japanese Bitter Orange / Stone Apple / Wood Apple in English which belongs to the Family Rutaceae is the State tree of Puducherry has announced by the Government on 16th April, 2007. It is a sacred tree for the Hindus and *sthala viruksha of Shiva Temple*.



Origin:

The tree is native to India, Nepal, the Andaman and Nicobar Islands and Myanmar. The tree grows wild in dry forests on hills and plains of central and southern India and Burma, Pakistan and Bangladesh, also in mixed deciduous and dry dipterocarp forests of former French Indochina.

Geographic distribution:

This tree is widely grown in temple gardens in India because of its status as a sacred tree. It is also grown in Sri Lanka, northern Malaya, the drier areas of Java and to a limited extent on northern Luzon in the Phillippine Islands. It is distributed throughout Southeast Asia in countries like Cambodia, China, Laos, Thailand and Vietnam and also in Houndras in America. It is grown in some Egyptian gardens, Surinam and Trinidad.

Climate:

It is a subtropical species. In Punjab, it grows up to an altitude of 4,000 ft (1,200m) where the temperature rises to 120° F (48.89° C) in the shade in summer and descends to 20° F (-6.67° C) in the winter and prolonged droughts occur. It will not fruit where there is no long, dry season, as in southern Malaya.

Soil:

It is best suited on well-drained soil, but it has grown well and fruited on the oolitic limestone of southern Florida. It grows well in swampy, alkaline or stony soils where pH ranges from 5 to 8. In India it has the reputation of thriving where other fruit trees cannot survive.

Description:

Bael is the only member of the monotypic genus *Aegle*. The bael fruit tree is slow-growing, of medium size, up to 40 or 50 ft (12-15 m) tall with short trunk, drooping branches and rather shabby crown.

Bark:

The bark is pale brown or grayish, smooth or finely fissured and flaking, armed with long straight spines, 1.2-2.5 cm single or in pairs, often with slimy sap oozing out from cut parts. The gum is also described as a clear, gummy sap, resembling gum Arabic, which exudes from wounded branches and hangs down in long strands, becoming gradually solid. It is sweet at first taste and then irritating to the throat.

**Leaf:**

The leaf is trifoliate, alternate, each leaflet 5-14 x 2-6 cm, ovate with tapering or pointed tip and rounded/acute base, untoothed or with shallow rounded teeth. Young leaves are pale green or pinkish, finely hairy while mature leaves are dark green and completely smooth. Each leaf has 4-12 pairs of lateral veins which are joined in the margin. The end leaflet features a long stalk, 0.5-3 cm while side stalks are typically shorter than 0.2 cm.

**Flower:**

The flowers are 1.5 to 2 cm, pale green or yellowish, sweet-scented, bisexual, in short drooping unbranched clusters at the end of twigs and leaf axils. They usually appear with young leaves. The calyx is flat with 4(5) small teeth. The four or five petals of 6-8 mm overlap in the bud. Stamens many, have short filaments short and pale brown. The ovary is bright green with inconspicuous disc.



Fruit:

Bael fruit typically has a diameter of between 5 and 12 cm. It is globose or slightly pear-shaped with a thick, hard rind and is not splitting upon ripening. The woody shell is smooth and green, gray until it is fully ripe when it turns yellow. Inside are 8 to 15 or 20 sections filled with aromatic orange pulp, each section with 6 (8) to 10 (15) flattened-oblong seeds each about 1 cm long, bearing woolly hairs and each enclosed in a sac of adhesive, transparent mucilage that solidifies on drying. The fruit takes about 11 months to ripen on the tree and can reach the size of a large Grapefruit or Pomelo and some are even larger.



The shell is so hard it must be cracked with a hammer or machete. The fibrous yellow pulp is very aromatic. It has been described as tasting of marmalade and smelling of roses.

Varieties:

One esteemed, large cultivar with thin rind and few seeds is known as '**Kaghzi**'. Some of the most promising varieties for commercial planting are '**Mitzapuri**', '**Darogaji**', '**Ojha**', '**Rampuri**', '**Azamati**', '**Khamaria**'. Among these varieties '**Mitzapuri**' is rated the best which is with very thin rind, breakable with slight pressure of the thumb, pulp of fine texture, free of gum, of excellent flavor, and containing few seeds.

Propagation:

The tree is commonly grown from seed in nurseries and transplanted into the field. The seedlings are not true to type and exhibit a lot of variability.

It is, however, essential to raise seedlings for rootstock. The seeds do not have dormancy, hence fresh seeds are shown in June in a well prepared bed mixed with properly decomposed farmyard manure and sand. Seeds germinate within 3 weeks. The seedlings become ready for transplanting 7 weeks after sowing. These seedlings are ready for budding after a year. The scion shoots should be selected from mother plants which are prolific bearers. Patch budding is ideal method with a 90% success rate. June–July is ideal time for budding.

Cultivation:

The tree has no exacting cultural requirements, doing well with a minimum of fertilizer and irrigation. The spacing in orchards is 25 to 30 ft (6-9 m) between trees. Seedlings begin to bear in 6 to 7 years, vegetatively propagated trees in 5 years. Full production is reached in 15 years. In India flowering occurs in April and May soon after the new leaves appear and the fruit ripens in 10 to 11 months from bloom—March to June of the following year.

Pests and Diseases:

More than a dozen insects have been found feeding on Bael. *Phyllocnistis citrella*, *Aonidiella aurantii* and *Papilio demoleus* are the important insects which can be easily controlled by use of insecticides. Bacterial shot hole, fruit canker and gummosis are the serious diseases. Fruit cracking is the physiological disorder in some genotypes which occurs just before ripening.

Harvest:

The fruit is harvested when yellowish-green and kept for 8 days while it loses its green tint. Then the stem readily separates from the fruit. The fruits can be harvested in January (2 to 3 months before full maturity) and ripened artificially in 18 to 24 days by treatment with 1,000 to 1,500 ppm ethrel (2-chloroethane phosphonic acid) and storage at 86° F (30° C). Care is needed in harvesting and handling to avoid causing cracks in the rind.

Yield:

A tree may yield as many as 800 fruits in a season but an average crop is 150 to 200, or, in the better cultivars, up to 400.

Storage Quality:

Normally-harvested fruits can be held for 2 weeks at 86° F (30° C), 4 months at 48.2° F (9° C). Thereafter, mold is likely to develop at the stem-end and any crack in the rind.

Food Uses:**Fruits:**

The fruits are cut in half, or the soft type's broken open, and the pulp, dressed with palm sugar, eaten for breakfast, as is a common practice in Indonesia. The pulp is often processed as nectar or "squash" (diluted nectar). A popular drink (called "sherbet" in India) is made by beating the seeded pulp together with milk and sugar. A beverage is also made by combining the fruit pulp with that of tamarind. These drinks are consumed perhaps less as food or refreshment than for their medicinal effects.



Unripe Fruits:

Mature but still unripe fruits are made into jam, with the addition of citric acid. The pulp is also converted into marmalade or syrup, likewise for both food and therapeutic use, the marmalade being eaten at breakfast by those convalescing from diarrhea and dysentery. A firm jelly is made from the pulp alone, or, better still, combined with guava to modify the astringent flavor. The pulp is also pickled. A firm jelly is made from the pulp alone, or, better still, combined with guava to modify the astringent flavor. The pulp is also pickled.

**Leaves and Shoots:**

Eaten as a vegetable in Thailand and used to season food in Indonesia. They are said to reduce the appetite.

Flower: An infusion of the flowers is a cooling drink.

Other Uses:**Fruit:**

The fruit pulp has detergent action and has been used for washing clothes. It is used to eliminate scum in vinegar-making. The gum enveloping the seeds is most abundant in wild fruits and especially when they are unripe it is commonly used as household glue and is employed as an adhesive by jewelers. It is mixed with lime plaster for waterproofing wells and is added to cement when building walls. Artists add it to their watercolors, and it may be applied as a protective coating on paintings.

Rind:

The limonene-rich oil has been distilled from the rind for scenting hair oil. The shell of hard fruits has been fashioned into pill- and snuff boxes, sometimes decorated with gold and silver. The rind of the unripe fruit is employed in tanning and also yields a yellow dye for calico and silk fabrics.

Leaf:

In the Hindu culture, the leaves are indispensable offerings to the 'Lord Shiva'. The leaves and twigs are lopped for fodder.

Flower: A cologne is obtained by distillation from the flowers.

Wood:

The wood is strongly aromatic when freshly cut. It is gray-white, hard, but not durable, has been used for carts and construction, though it is inclined to warp and crack during curing. It is best utilized for carving, small-scale turnery, tool and knife handles, pestles and combs, taking a fine polish.

Medicinal Uses:**Fruits:**

The fresh ripe pulp of the higher quality cultivars, and the "sherbet" made from it, are taken for their mild laxative, tonic and digestive effects. A decoction of the unripe fruit, with fennel and ginger, is prescribed in cases of hemorrhoids. It has been surmised that the psoralen in the pulp increases tolerance of sunlight and aids in the maintaining of normal skin color. It is employed in the treatment of leucoderma. Marmelosin derived from the pulp is given as a laxative and diuretic. In large doses, it lowers the rate of respiration, depresses heart action and causes sleepiness.

**Leaf:**

The bitter, pungent leaf juice, mixed with honey, is given to allay catarrh and fever. With black pepper added, it is taken to relieve jaundice and constipation accompanied by edema. The leaf decoction is said to alleviate asthma. A hot poultice of the leaves is considered an effective treatment for ophthalmia and various inflammations, also febrile delirium and acute bronchitis.

Flower:

A decoction of the flowers is used as eye lotion and given as an antiemetic. The bark contains tannin and the coumarin, aegelinol and is used in treating malaria. Decoctions of the root are taken to relieve palpitations of the heart, indigestion, and bowel inflammations, also to overcome vomiting. The fruit, roots and leaves have antibiotic activity. The root, leaves and bark are used in treating snakebite.

Toxicity:

The bark is used as a fish poison in the Celebes. Tannin, ingested frequently and in quantity over a long period of time, is antinutrient and carcinogenic.

ENVIRONMENT EVENTS

Skill Development Programme on Handling, Recovery and Recycling of Refrigerant gases

Refrigeration, including air conditioning, is necessary for life and will continue to expand worldwide. But its impact on environment is huge, as the refrigerant gases like CFCs are the main cause for depletion of Ozone layer in the atmosphere. Ozone layer plays an important role by protecting the life on earth from the harmful effects of Ultra Violet rays emitted by Sun. Ozone Depleting Substances (ODS) like refrigerant gases is the major reason for the Ozone Hole observed in 1985 above Antarctica (wikipedia).

In 1987, the Montreal Protocol was adopted for the purpose of restricting the production, consumption and trade of ODS in order to protect the ozone layer. CFCs had been used as refrigerants for air conditioning equipment and had a significant impact on ozone-layer depletion. Government of India has also adopted the Montreal Protocol which envisages phasing out of ODS over a period of time. The Central and State Government are implementing various programs to achieve the targets for phasing out of ODS and safe handling, recovery and recycling of refrigerant gases.

To enhance the skills of the AC technicians, Puducherry Pollution Control Committee has conducted a training programme on Handling, Recovery and Recycling of Refrigerant gases for the technicians of Pondicherry Ref & Air-Conditioners Technicians and Trainees Welfare Association (PRACTTWA) on 28th and 29th October'2017 at Dr. Abdul Kalam Science Centre and Planetarium, Lawspet, Puducherry. The training program would help the technicians to handle the refrigerant and air-conditioner gases effectively which otherwise leads to environment issues. The Event was inaugurated by the Hon'ble Minister for Science, Technology and Environment along with Thiru .M. Dwarakanath, Director, DSTE.

Thiru R. Kamala Kannan, M/s Sakthi Refrigeration & Air- conditioning Enterprises, Chennai and Thiru. Sabapathi Kanaga, Siva Refrigeration, Chennai was invited for given special talk on Handling, Recovery and Recycling of Refrigerant gases on 28.10.2017 and practical session has been held on 29.10.2017. The stakeholders were approximately around 100 Technicians from the Pondicherry Refrigeration and Air-conditioners Technicians and Trainees Welfare Association along with DSTE officers, PPCC along with ENVIS staff and public participated in the function. Finally, Certificate has been distributed to the stakeholder by the Hon'ble Minister for Science, Technology and Environment.



Two days Skill Development Training Programme on Handling, Recovery and Recycling of Refrigerant gases

ENVIRONMENT NEWS CLIPPINGS



Help animals beat the heat

It's not just humans who feel the heat. Even your furry companions struggle to deal with the scorching temperature. Here's what you can do to help them deal with the summer and keep them healthy



FOR FEATHERED FRIENDS Place bowls on window sills, on balconies, on terraces and in gardens. Change the water regularly



AVOID ENCLOSED SPACES Never leave your pet inside a parked car in warm weather, even for short periods of time. On a relatively mild 28°C day, the temperature inside a car can rise rapidly, reaching a dangerous 32°C in the shade and a deadly 71°C in the sun. Dogs trapped inside a car can succumb to heatstroke within minutes — even if the car isn't parked in direct sunlight

KEEP COMPANIONS INSIDE Unlike humans, dogs sweat only through their footpads, and cool themselves by panting. Soaring temperatures can cause heat stress and physical injuries, including brain damage

FOOD FOR THOUGHT See that your pets are well hydrated and always have access to clean drinking water

COOLING OFF If there is a facility available nearby, take them for an occasional swim. Even your dog needs a summer cut, so keep them well groomed

HELP THE STRAYS TOO Place mud pots filled with cool, clean water outside your home or at places where there are homeless or working animals. Mud pots help keep the water cool and do not tip over

'Don't wash clothes in River Cauvery'

SPECIAL CORRESPONDENT
SALEM

The Mettur Municipality has urged people not to wash clothes in the meagre water flowing in river Cauvery.

In a statement issued here, Narayanan, Municipal Commissioner, said that due to severe drought, meagre water was being released from Mettur Dam into River Cauvery to meet the drinking water needs.

The local people had been washing clothes in the river water. Many also performed the final rites of the dead on the river bank.

This spoiled and polluted the river water.

The Municipal Commissioner called upon people not to wash clothes in the river water near the Cauvery bridge. They should also refrain from polluting the water.

Segregation of waste at source must from June

TIMES NEWS NETWORK

Madurai: Come June, a new waste management system will come into force in the city, making it mandatory for residents to segregate garbage at source before it is collected by corporation workers.

The Madurai Corporation will start collecting waste material segregated into biodegradable and non-biodegradable waste from June 1. The corporation will also collect a fee ranging between ₹10 and ₹30,000 per month from residents, shops and commercial establishments as per the by-laws framed by the civic body under the Solid Waste Management Rules, 2016.

Commissioner Sandeep Nanduri, while talking to reporters on the sideline of Happy



STRICT ENFORCEMENT: Waste will be collected only if it is segregated into biodegradable and non-biodegradable material

Street, said that they will start collecting segregated waste by June 1. Starting June 5, segregation at source will become mandatory.

"Waste will be collected only if it is segregated into biodegradable and non-biodegradable material. There is nothing waste. The biodegradable waste can be used for various purposes, including production of biogas,

electricity and fertilizers," he said. The by-laws for waste segregation framed before April were kept for public viewing for a week's time from April 1. A fine will be imposed for not segregating wastes and also dumping waste in open areas, roadsides or waterbodies. The fine will range between ₹100 and ₹15,000 as per waste and those found violating rules.

Chennai makes a mess, Trichy saves the blushes

Pradeepkumar.V@timesgroup.com

The Swachh Survekshan rankings, that put Chennai at the bottom half of the cleanliness rankings at a distant 235th, have embarrassed the city corporation again but Trichy saved Tamil Nadu the blushes by being the sixth cleanest city in the country.

In the survey, Coimbatore scored 1,650 out of 2,000 and was ranked 16th. Kumbakonam entered the top-50 at 37 while Erode was 42nd.

Though Trichy slipped from third to sixth, it remained in the top 10 due to an overwhelmingly positive feedback from its residents and continued efforts taken to collect, process and dispose solid waste. Twenty eight cities and towns from the state participated in the survey. Nearly one-third of them were ranked in the top 100. This included Madurai (57), Tambaram (62), Tirupur (68), Hosur (82) & Velankanni (84), Pallavaram (155) and Avadi (169), both under the Chennai Metropolitan Area, ranked higher than Greater Chennai Corporation.

Abysmal solid waste management once again spoiled the city's chances of moving up the rankings. Chennai scored a meagre 46 out of 200 in the category.

The poor show shocked corporation officials. "Anybody who has been to Varanasi, the Prime Minister's constituency, would not say it is cleaner than Chennai," said a senior corporation official. Varanasi is ranked 32. "The survey gives 40% weightage to solid waste disposal which is unfair in a list comprising bigger and older cities, and newer towns. Places like Trichy do not deal with legacy of garbage," the official said.

Activist Nityanand Jayaraman said Chennai was not too different from other metros when it came to handling solid waste. "The survey seems complicated. But which other city is closer to efficient solid waste management (than Chennai)?" he said.

While the survey said 10% of posts for conservancy staff were vacant, Thiruganana Sambandan, director of Ramky which handles solid waste in the city said no amount of coverage would be sufficient unless source segregation takes place. Increasing the number of conservancy workers will not be affordable, he said. "The cost of handling a tonne of garbage is more than ₹3,000. Hiring will increase costs," he said.

However, environmental activist Shweta Narayan punched holes in Sambandan's logic. "Treating solid waste management as a commercial activity is failing the city. Because, if the system is where you pay a contracted party money per tonnage, then he/she will be against the idea of source segregation. It is against the company's business interests to reduce the tonnage through segregation," she said.

Pic: B & Balu

RAISING A STINK

59% residents said the availability of garbage bins in Chennai's market areas is unsatisfactory



FULL OF FILTH: Activists say segregation of waste at source and its awareness are key to combating Chennai's garbage menace

PART 1, 900 MARKS
Data given by corporation

PART 2, 500 MARKS
Data collected through independent assessment

PART 3, 600 MARKS
Direct citizen feedback

HOW CHENNAI FARED

| Corporation report | Field assessment | Citizen feedback |
|--------------------|------------------|------------------|
| 415 / 900 | 283 / 500 | 218 / 600 |

Total | 916/2000

RANK 235



CORPORATION REPORT

>80% wards covered under door-to-door waste collection programme
<75% commercial



areas swept clean twice a day
>50% wards have informal waste pickers
No operational waste processing plant
No sanitary landfill
<75% wards have waste segregation
No single bulk garbage generator practice on-site or decentralised composting

CITIZEN'S INPUT
3,525 gave feedback
53% said their area was cleaner than in 2016
59% said garbage bins unsatisfactory in market areas
53% happy with door-to-door waste collection
53% said city has fewer available or accessible public toilets

FIELD ASSESSMENT
>75% of residential areas clean
Areas near Chennai Central and CMBT

not found 100% clean
Public toilets near bus and railway stations not child and disabled-friendly

MARKS FOR KEY PARAMETERS

• Solid waste collection and transportation | 184 / 400 (Coimbatore 352, National average 224)
• Solid waste processing and disposal | 46 / 200 (Coimbatore 180, National average is 47)
• Open defecation & public toilets | 140 / 300 (Trichy 270, National average 103)
• Capacity building efforts | 45 / 50 (Shared with Cuddalore, National average 20)
• Awareness | 0 / 50 (Tiruppur 37, NH avg 16)

CHENNAI vs OTHERS

DELHI
New Delhi Municipal Council: Rank 7; Marks 1708
Delhi Cantonment: Rank 172; Marks 1062
East Delhi Corporation: Rank 196; Marks 1004
South Delhi Corporation: Rank 202; Marks 984
North Delhi Corporation: Rank 279; Marks 834

KARNATAKA
Bruhat Bengaluru Mahanagara Palike: Rank 210; Marks 968

TELENGANA
Greater Hyderabad Municipal Corporation: Rank 22; Marks 1605

MAHARASHTRA
Navi Mumbai: Rank 8; Marks 1705
Greater Mumbai: Rank 29; Marks 1535

AROUND THE WORLD

AP



PLASTIC ISLAND: A 2015 photo shows plastic debris strewn on a beach on Henderson Island, located in the middle of the Pacific Ocean halfway between New Zealand and Chile. Recently, researchers travelled to the island to find 38 million pieces of trash — including toy soldiers, dominos, toothbrushes and hundreds of hardhats — washed up on the beaches, weighing about 17.6 tonnes. They said the density of trash was the highest recorded anywhere, despite the remoteness of the island, a Unesco world heritage site

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