



PLUMERIAS IN SE TEXAS



Rosemary C. Miller, BS, MEd
Nederland, TX
Master Gardener, Jefferson Co., TX



FOR THE LOVE OF PLUMERIAS

One is not enough!



PlumieholiC

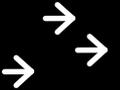
An individual who is addicted to
Plumerias

Plumerias are known by many names

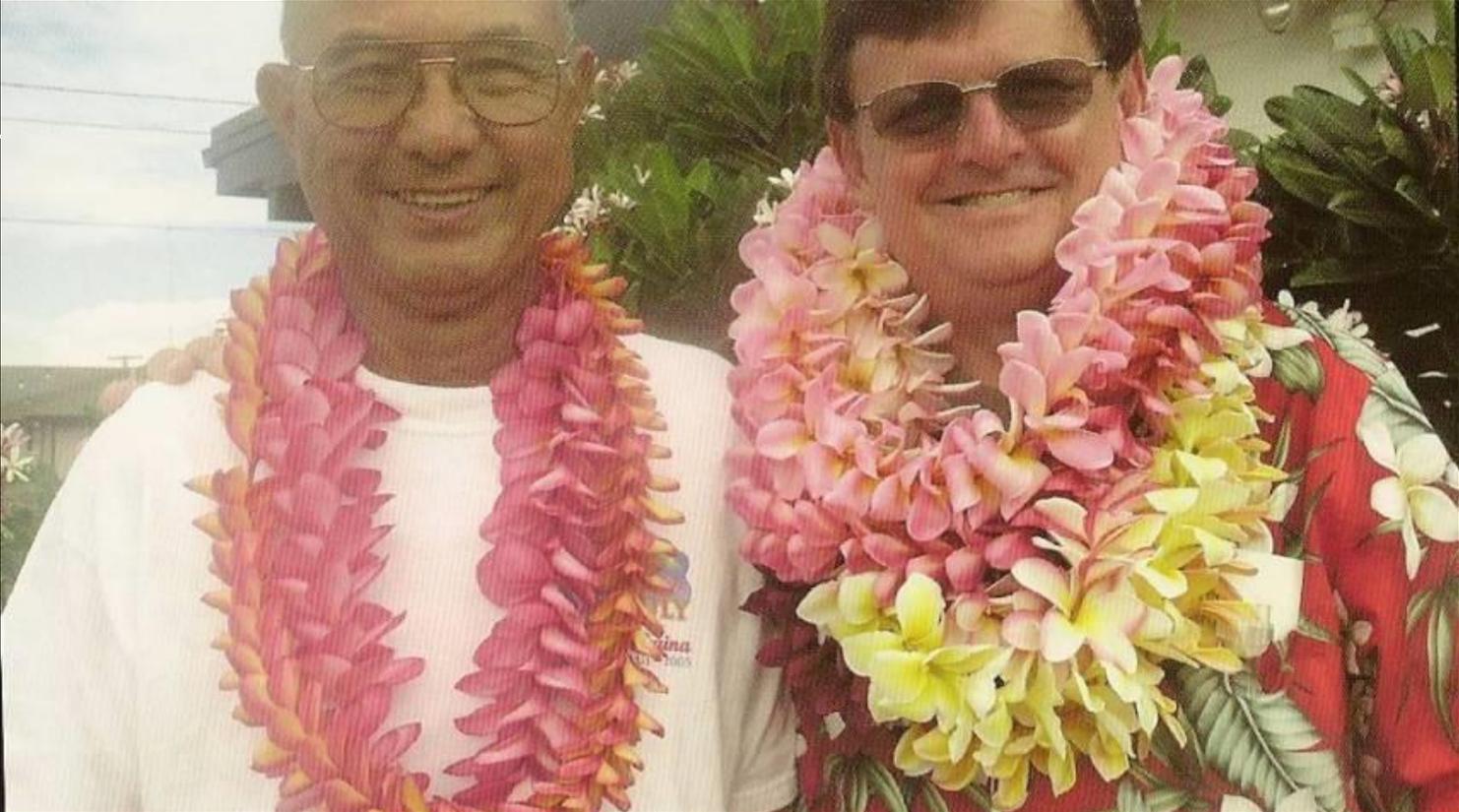
- English Names:
Pagoda Tree, Frangipani, Dead Man's Flower, Temple Tree and Graveyard Tree
- The generic name *Plumeria* came from the French traveler and botanist Charles Plumier (1664-1706)
- Family : Apocynaceae
There are 31 identified types of which the most common are acutifolia, alba and rubra

Myths and Legends

- Graveyard Tree and Dead Man's Flower –
In the areas of the world where Plumerias are a native, such as Mexico, India and the Asian Pacific, they are often planted near cemeteries and churchyards, temples and holy places thus the names.
- The Plumeria was considered unlucky when it was first introduced in 1860 to Hawaii because of its association with death. However when it was noticed how easily the plant grew new flowers from broken branches...how it flowered when there were no leaves, and thanks to its medicinal properties, it began to be more associated with life. (Source: Dr. Richard Criley & Jim Little)



Many people associate the word "Plumeria" with the fragrance used in soaps, lotions, candles and air fresheners. The fact is, the fragrance of a Plumeria depends upon the individual cultivar and is as varied as the flowers themselves.



Picture courtesy of Alan Bunch

'I got leid in Hawaii'

Plumerias are widely known as the "Lei Plant"
Leis that are made from Plumeria are called Melia Lei

In SE TX Plumerias provide flowers for your hair!





Where did you get that Plumeria?

- California, Florida, Louisiana and Texas have many Plumeria growers.
- Imported plants:

Thailand

India

Singapore

Australia

Puerto Rico



Importing Plants

- Import Permit from the USDA is required
- Plants must be sent with a Phytosanitary Certificate from the country of origin
- Plants usually clear customs in Dallas
- Plants are then sent to the USDA Inspection Station in Humble, TX to be cleared for entry into the US.
- If a plant fails inspection it is usually destroyed and the importer is notified.

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE
4700 RIVER ROAD, UNIT 136
RIVERDALE, MARYLAND 20737-1236

1. PERMIT NUMBER

37-87525

Transmit Permit Number to your Shipper but Retain this Permit

IMPORT PERMIT FOR PLANTS AND PLANT PRODUCTS

2. EXPIRATION DATE

SEPTEMBER 30, 2009

3. NAME AND ADDRESS OF PERMITEE (Include Zip Code)

(NOTE: Permittee should notify PPQ, APHIS, USDA, promptly of change of address.)

Rosemary C. Miller
1604 N. 27th St.
Nederland, Texas 77627

Telephone No. **(409) 722-7959**

4. UNDER AUTHORITY OF THE PLANT QUARANTINE ACT, AS AMENDED, PERMISSION IS HERE BY GRANTED TO THE PERMITEE TO IMPORT IN ACCORDANCE WITH:
7 CFR 319.37

5. THE PLANTS OR PLANT PRODUCTS SPECIFIED BELOW WERE GROWN OR REPRODUCED IN:
Various Approved Countries

6. THROUGH THE PORT(S) OF:

New York, NY (incl. Linden, NJ)

Honolulu, HI Orlando, FL
Houston, TX San Francisco, CA
Los Angeles, CA Seattle, WA
Miami, FL

7. DESIGNATION OF PLANTS OR PLANT PRODUCTS:

ADMISSIBLE NURSERY STOCK, PLANTS, AND ROOTS NOT SUBJECT TO POSTENTRY QUARANTINE SEEDS OF TREES AND SHRUBS AND ALSO SEEDS COVERED IN PART 319.37-6

Please refer to the list of prohibited plants and seeds, in the enclosed Part 319.37 (Quarantine 37). It is your responsibility to import only admissible plants and seeds. Prohibited plants and seeds included with any importation will be refused entry.

All plants and plant parts of the subfamilies Aurantiodeae, Rutoideae, and Toddaliodeae of the botanical family Rutaceae are prohibited. Rutaceae seeds are enterable under written permit, treatment is required if the shipment is from certain countries listed in CFR 319.37-6(e).

Importers of all plant material should pay particular attention to the enclosure concerning endangered species "Dear Applicant/Permit Holder". The plants listed regardless of origin, must be accompanied by documentation required by the CITES requirements. These documents must be obtained prior to importation of plants into the United States.

If you have received the enclosed shipping labels (PPQ Form 508) to enable foreign shipments to enter the U.S. under this permit, the label must be securely attached to the exterior of each package bearing the designated Plant Inspection Station address. **DO NOT PLACE ANY OTHER DELIVERY ADDRESS ON THE OUTSIDE OF THE PACKAGE. ALL COSTS AND ARRANGEMENTS FOR TRANSPORTATION TO AND FROM THE INSPECTION STATION IS THE RESPONSIBILITY OF THE IMPORTER.**

Any alteration, forgery, or unauthorized use of this Federal Form is subject to civil penalties of up to \$250,000 (7 U.S.C.s 7734(b)) or punishable by a fine of not more than \$10,000, or imprisonment of not more than 5 years, or both (18 U.S.C.s 1001).

This permit does not authorize the importation of any genetically engineered plants or products thereof. To import such plants (or to move them interstate), write to Biotechnology Regulatory Services, Permits, USDA, APHIS, 4700 River Road, Unit 147, Riverdale, Maryland 20737-1237.

8. SIGNATURE OF AUTHORIZING OFFICIAL

Carolyn F. Fitzgerald

(877) 770-5990

CAROLYN F. FITZGERALD

9. DATE ISSUED

8/4/04

ENCLOSURE: **Letter (Dear Permit Holder) w/Part 23.23; 7 CFR 319.37; Federal Noxious Weed List**

NOTE: A PHYTOSANITARY CERTIFICATE MUST ACCOMPANY ALL PROPAGATIVE MATERIAL.

This Package Contains
PLANT QUARANTINE MATERIAL

DELIVER TO
U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE

19581 Lee Road
Humble, TX 77338

37-87525

PPQ FORM 508 (JUN 2004)

PERMIT NO.



ORIGINAL

PC0810501EX

Agri-Food & Veterinary Authority of Singapore

PHYTOSANITARY CERTIFICATE
THE CONTROL OF PLANTS ACT

Plant Protection Organization of Republic of Singapore

To: Plant Protection Organization(s) of UNITED STATES

I. Description of Consignment

<u>Name and address of the Exporter</u> BARRY NG 776 PASIR RIS STREET 71 #16 - 406 Singapore 510776	<u>Declared name and address of Consignee</u> ROSEMARY MILLER 1904 27TH STREET NEDERLAND, TX 77627 UNITED STATES
--	--

Name of produce / Botanical name of plants	Quantity declared	Number and description of packages	Place of origin	Distinguishing marks
PLUMERIA CUTTINGS	2 (NMB)	--NA--	SINGAPORE	--NA--

Declared means of conveyance: AIR	Declared date of shipment: 08/07/2008
Declared point of entry: TEXAS	

II. Additional Declaration

- Not Applicable -

III. Disinfestation and for Disinfection Treatment

Date: --NA--	Treatment: --NA--
Chemical (active ingredient): --NA--	
Concentration: --NA--	Duration and Temperature: --NA--
Additional information: --NA--	

This is to certify that the plants, plant products or other regulated articles described above have been inspected and/or tested according to appropriate official procedures and are considered to be free from the quarantine pests specified by the importing country and to conform with the current phytosanitary requirements of the importing country, including those for regulated non-quarantine pests.



(Stamp of organization)

TULANG ERIC CASIANO

(Name of authorized officer)

07/07/2008

(Date of issue)

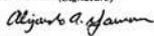


for Director-General
Agri-Food & Veterinary Services

No financial liability with respect to this certificate shall attach to the Agri-Food and Veterinary Authority of Singapore or to any of its officers or representatives

IT SHALL BE UNLAWFUL FOR ANY PERSON TO ALTER, DEFACE OR WRONGFULLY USE THIS CERTIFICATE

The Dreaded Disposal Notice

U.S. DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE PLANT PROTECTION AND QUARANTINE		1. PORT OF ENTRY Houston, TX	
MAIL INTERCEPTION NOTICE		2. DATE 11/07/06	3. REFERENCE
<p>The material described below was found to be moving in the mails in violation of the agriculture quarantine regulations pertaining to the entry and movement of plants, plant products, animal products, soil, and plant pests. These violations may result in criminal or civil penalties. Disposition was taken under authority of laws administered by the U.S. Postal Service, U.S. Customs Service, and U.S. Department of Agriculture. All inquires concerning condition, delays, shortages, or breakage should be addressed to the postmaster at the above port (Item 1). Information concerning the quarantine referred to in Item 12 may be secured on application to PPO, APHIS, U.S. Department of Agriculture, Hyattsville, Maryland 20782. 4700 River Road, Unit 60, Riverdale, Maryland 20737.</p>			
4. TO (Addressee)		5. FROM (Addressor)	
Rosemary C. Miller 1604 27 th St. Nederland, Texas 77627		Cholpavee Boonyasinrat 9/114 Puttabucha Rd. Bangmod, Jomthong BKK, Thailand 10150	
6. INTERCEPTED MATERIAL			
1 Phumeria sp. plant			
7. POSTMARK Thailand Post		8. DATE 10/25/06	9. MAIL REGISTRY NO. RC 4185 2343 7 TH
10. BREAKAGE None	11. RECONDITIONING REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	12. QUARANTINE OR REGULATION IN VIOLATION 7 CFR Part 319.37	
13. DISPOSITION			
<input type="checkbox"/> Prohibited material removed and destroyed <input checked="" type="checkbox"/> Container and contents destroyed <input type="checkbox"/> Package returned to origin			
14. REASON FOR DISPOSITION			
<input type="checkbox"/> Addressee, after due notice, failed to apply for permit required by law. <input type="checkbox"/> Contains meat not admitted by U.S. Department of Agriculture. See 2.13.1 and 2.13.2 "Objets Interdits." Meat may carry animal diseases that do not occur in the United States. <input type="checkbox"/> Material infested or infected and treatment not feasible. Insect pests and plant diseases in fruits, vegetables, or other plant material could become established and threaten U.S. agriculture. <input checked="" type="checkbox"/> Material not authorized entry. <input type="checkbox"/> Material in or contaminated with soil. Soil can carry many plant pests and diseases. <input type="checkbox"/> Other (Specify):			
15. REMARKS (Include any pertinent information, i.e., condition of material, condition of cans which indicates not shelf stable, etc.)			
Plant exceeds plant size and age limitations.			
16. INSPECTOR (Signature)			
			

PLUMERIAS ARE TREES



Photo courtesy of Jim Little

A large Pudica Plumeria growing at the Jim Little Farm



LIGHT REQUIREMENTS

- PLUMERIAS PREFER FULL SUN, but they must be worked up to it gradually if they have been shaded for a long time. Even stems may sunburn when brought out from winter storage if not exposed gradually to the full sun.
- 6 to 8 hours of sun each day is needed for blooms



WATER REQUIREMENTS

- Plumeria stems store moisture for extended periods.
- Water them well only after they have begun to dry, but be sure that all water drains away. **THEY DO NOT LIKE WET FEET.**
- Plumerias like to be damp, not soggy, and not completely dry except in the winter.
- In the winter they should be very dry in order to avoid stem rot.

FERTILIZER

- Plumerias are heavy feeders.
- Prefer rich organic matter - compost
- Commercial fertilizers need to be a balanced fertilizer. Dynamite 13-13-13 is a favorite with me.
- Rosemary's Mix - Fish Emulsion, Epson Salts, Blackstrap Molasses and left over carbonated drinks, beer, wine or liquor mixed in water.

Feeding the Plumies





Re-Potting and Topping Soil

- Spring brings new growth and the need for larger pots.
- Plants that are not re-potted are topped up with new soil. This is accomplished by removing some of the old soil and applying new soil to the pot.

My Preferred Mix





BLOOMS

- The time required for a Plumeria to produce blooms depends on the manner in which a plant was started.
 - Mature plants will bloom over a long period with flowers beginning in the early spring and often they will continue blooming into the late fall.
 - Colors range from white to rainbows and the shape of the flowers are as varied as the plants.
- 



Stenopetala

Black Tiger



Firestorm



Defel



Salmon Brown





PRUNING

Plumerias can be pruned at any time with a sharp knife. The cut should be made at an angle so the cut will not hold moisture. The plants will "bleed" their latex sap, but the bleeding usually stops in an hour or so.

Why Prune?





PROPAGATION

Propagation of Plumerias is achieved by one of five methods:

- Seeds
 - Rooted Cuttings
 - Air Layering
 - Grafting
 - Budding
- 

Seeds



Plumeria seeds grow in pods which take about 9 months to mature.

Plumeria seeds are unique in that they don't produce a plant which is identical to the mother plant.



8 new pods formed on *Boon Yen*



Double pod on *Meteor*



Once a seed pod is mature it slowly opens and if it has not been covered with net or other materials the seeds often fall to the ground or blow away in the wind.



Seeds are first soaked for 24 hours and then placed between two moist paper towels and inserted into a plastic Ziploc bag. The bag is then placed in a warm area with indirect sunlight and left to germinate .



After germinating, the seeds are now ready to be planted



The seeds are then placed in Cactus Mix or other fast draining soils



Once the seeds are planted they are put into the greenhouse. These seedling were planted in June.



A mini greenhouse made from a 2 gallon Ziploc bag and wooden skewers



As the seedlings grow they are then transplanted into one gallon pots. Each seedling is unique and will be known as a “seedling of”



Cutting

Produce a plant that is identical to the mother tree

- Cuttings should be at least 12 inches long
- Dip the cut end in rooting hormone
- Allow them to dry in a ventilated area for a few days
- Plant cutting 3 to 4 inches in mixture of at least 50% Perlite and soil. Some prefer lava rock for rooting.
- Bottom heat is necessary for rooting.

Rooting Tubes



Plumeria cuttings in rooting tubes



Commercial Rooting Tray



Gang Rooting



Gang Rooting Large Cuttings



Cuttings which have calloused and are ready to put out roots



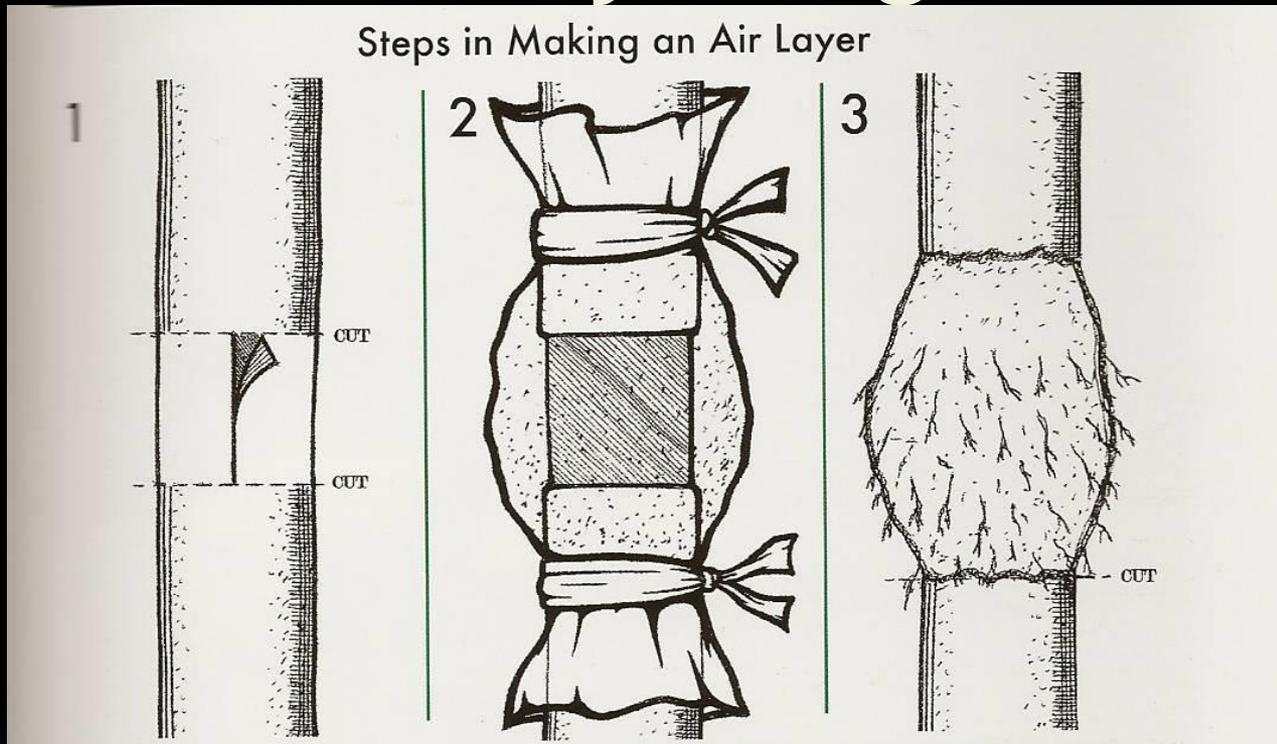
Courtesy of Mark Terrill

Rooted cutting taken from tube



Air Layering

Steps in Making an Air Layer



Cut 1" girdle and Remove strip of Bark from around The branch

Wrap moist sphagnum moss that has been sprinkled with a rooting powder around the branch. Surround the girdle with plastic and tie.

When roots appear, cut below the moss and plant directly into a potting soil

Courtesy Jim Little

Air Layering in Thailand



Courtesy of Luc Vannorbeeck

Grafting

- Types of grafts
 1. “V” shaped grafts most common in Thailand
 2. Slant “\” graft is most common in the US
 3. Bud grafts



Dwarf Siam Yellow

Pops

RIM FIRE



Why Graft?

1. Rare or hard to root plants are often grafted
2. Faster than rooting a cutting
3. Stronger root system
4. Several plants from one cutting

Grafting tools



Courtesy of Luc Vannorbeeck

Grafting supplies



Courtesy of Luc Vannorbeeck

In Thailand, bud grafting is very popular because many plants can be made from one cutting



Courtesy of Luc Vannorbeeck

Bud graft as it matures



Courtesy of Luc Vannorbeeck

Variegated Plumerias





*Plumeria....
Head Aches
and
Heart Breaks!*



Insect Enemies

When a Plumeria is attacked by insects it is usually because the plant is stressed.

- Spider Mites
- White Flies
- Thrips
- Mealy Bugs
- Scale (*Homoptera: Coccidae*)
- Plumeria Borer - usually found in Hawaii

Spider Mites



White Flies



Thrips



Mealybugs



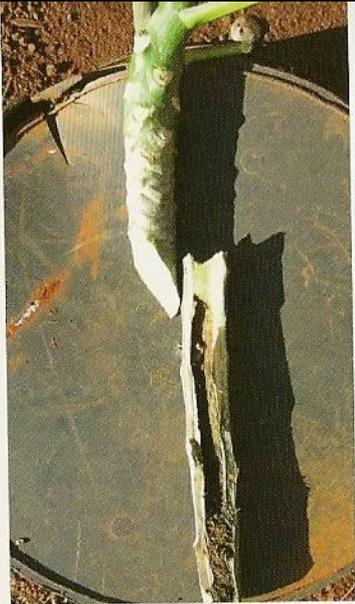
Leaf damage caused by Mealy



Scale



Plumeria Borer



Courtesy of Jim Little



Diseases

- Rust
 - Black Tip
 - Stem Rot
 - Powdery Mildew
 - Leaf Spot Disease (Anthracnose)
- 

Rust is a common problem in areas with high humidity



Rust on underside of Plumeria leaf



Black Tip



New growth after blacktip



Stem Rot



Stem Rot



Stem Rot in cuttings



Hurricanes and Tropical Storms





With a little warning



WINTER BRINGS DORMANCY

Alan Bunch standing by a large dormant Plumeria tree in Hawaii



Photo courtesy of Alan Bunch

Plumerias grown in SE TX must be stored in the winter; therefore, they are often grown in pots.



Center Plumie Patch



December means clipping the leaves and a move into the greenhouse for Plumerias grown in SE Texas!



Leaving a very bare yard!



For SE Texans who grow Plumerias in the ground, it is “dig up time”



Courtesy of Emerson Willis

For those without a greenhouse, storage is found in other areas



Courtesy of Emerson Willis



Courtesy of Emerson Willis

In colder areas of the US, Plumerias are often grown under lights because of the short growing season



Courtesy of Scott Lawder
Overland Park, Kansas

Next Spring

it starts all over again!

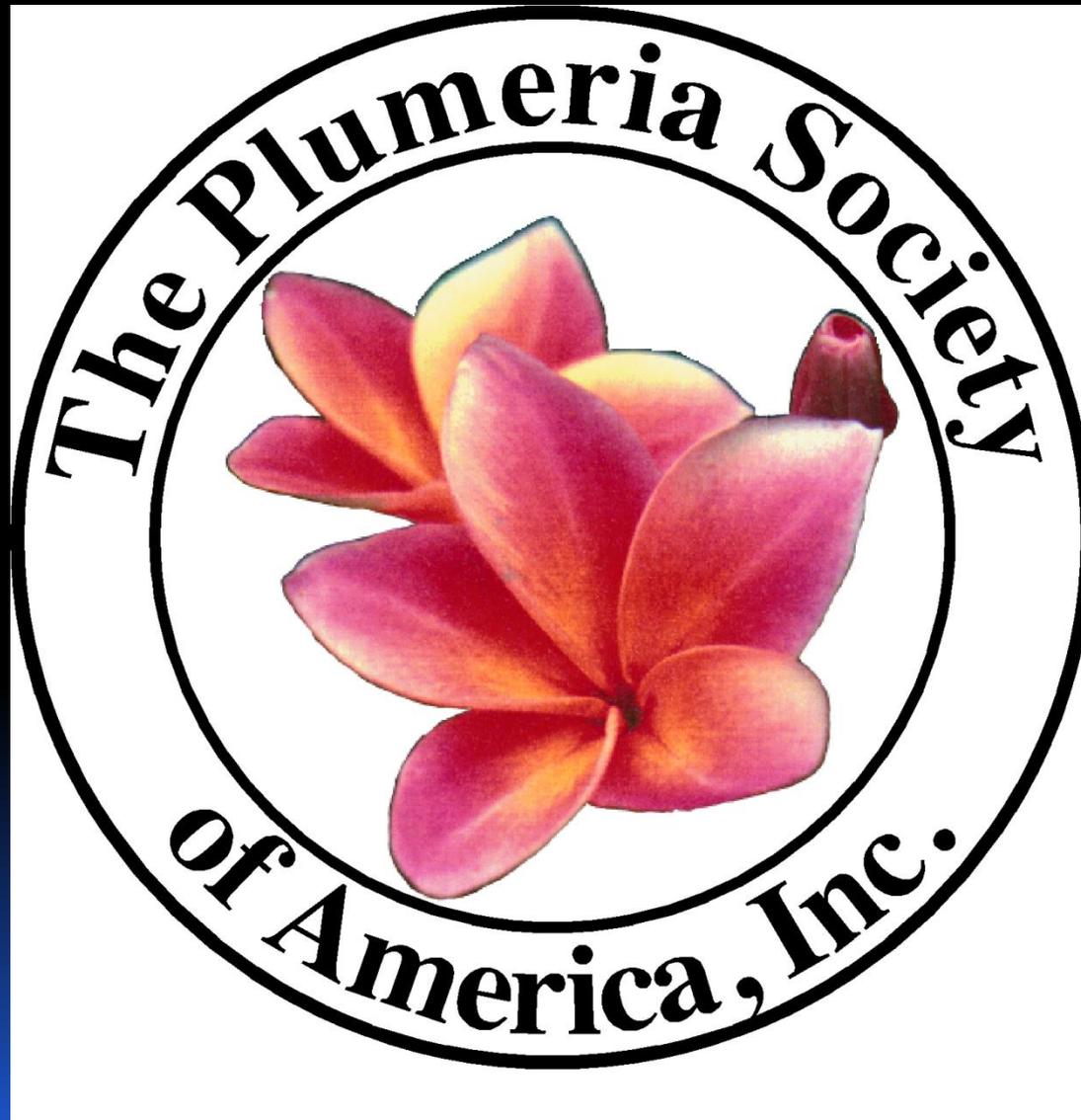


WHY THE BOTHER?





Friends with common interests





Rosemary Miller
Membership Chairman
The Plumeria Society of America, Inc.
P O Box 22791
Houston, TX 77227-2791
www.ThePlumeriaSociety.org

The PSA has sales each year in June and August



Fred guarding my buggy!



Buyers travel from California, Louisiana and Florida to the sale



Florida and Louisiana buyers



Danny Kashou of the So. CA Plumeria Society and Emerson Willis of Baytown



International Plumeria Conference



STAY TUNED

FOLKS.....THE BEST IS

YET TO COME! 😊

Come and visit my Plumie Patch

