

# BROMELIAD SOCIETY OF

## SAN FRANCISCO

APRIL 2018



### Meeting Specifics

When: Thursday, May 19

Time: 07:30 PM

Recreation Room

Where: San Francisco County Fair  
Building  
9<sup>th</sup> Avenue at Lincoln Way  
San Francisco

### Guatemalan Bromeliads and their cold-blooded tenants

This month our speaker will be **Jay Vannini**. Jay has lived 40 years in Guatemala and will talk about bromeliads and other flora and fauna of Guatemala and how salamanders and arboreal alligator lizards live with the epiphytes. Jay has published material on a variety of natural history-related topics over the years and has a long-standing interest in bromeliads and herpetofauna.



No one signed up for refreshments this month. Thanks in advance to all members who will come up with delicious goodies.



## March Meeting

Dan Arcos used our Show-and-Tell plants as a vehicle to discuss bromeliad basics

**Dan Arcos** started his discussion with the revision of the bromeliad family from 3 sub-families into 8 sub-families. This change is based on evolutionary history as well as the variation in the DNA. Dan then went into each of the

Show and Tell plants that were brought in by our members. Naturally, many of the genera were not present and many genera we do not grow well in our climate. For those plants that were there Dan explained how to grow them successfully.

He had advised members to bring in their ailing plants for diagnosis of cultivation problems, but we must all be growing our plants successfully and none were brought in. Thanks, Dan for sharing your many years experience with bromeliads.

## TIME TO PAY DUES

This is a reminder to you that dues for 2018 are due: \$15 for a single membership and \$20 for a dual membership. Pay our treasurer, Harold Charns at the meeting or check the last page of this newsletter for details. **This will be your last newsletter if you owe dues and have not yet paid.**

## San Francisco Botanical Garden Annual Plant Sale

On Friday, May 4<sup>th</sup> from 5-8 PM, the San Francisco Botanical Garden (formerly Strybing Botanical Garden) will hold their Annual Plant Sale. Our society has always been a participant in this event. It has been beneficial for both the botanical garden through the money they make and our society for publicizing our June sale and the opportunity for our volunteers to pick up unusual plants. If you have bromeliads you can donate, this will be appreciated. Marilyn Moyer is handling signups. Please call Marilyn at 650-365-5560.

# The Fibonacci Sequence and Pineapples



Look at any plant (tomato, strawberry or pineapple) and count the number of petals or the way the leaves are arranged. You will find them set out in pairs, threes, fives, eights or thirteen's, but never fours. Plants don't like four.

Plants stick to numbers in the series 1,2,3,5,8,13,21,34 where each number comes from adding the previous two together. The series is called The Fibonacci Sequence. Mathematicians love this string of numbers, as do plants. You will find these numbers in the five seed chambers you find when you cut across an apple, or the 34 or 55 spiral whorls in a sunflower head. We do not have four-leafed clover or a four-leafed anything else.

## Phyllotaxis; Arrangement of Leaves on Stem

In the following, note how the Fibonacci Sequence seems to rule: the flowers of a pineapple and thus bromeliads have three petals.



*Neoregelia pendula*

When I seriously started to look at the shape of Neoregelias and what made the shape appealing and what was right for the plant, the work on pineapples was the benchmark to copy. Once you understand how leaf shape is formed you do not have to strip a plant, you can line up leaves and count, but I will explain in detail. The leaf phyllotaxy can be determined by removal of the leaves and marking the growth bud at the base of the leaf then noting the number of leaves, which have to be removed before another leaf bud appears on a line on the stem extending vertically above the first number bud, and also noting the number of spirals that have been made around the stem. We find the leaf phyllotaxy is 5/13. The five is the number of spirals around the stem and thirteen the number of leaves removed in the five spirals until another bud, the

fourteenth is found directly above bud number one.

When a pineapple is formed hormones change the phyllotaxy from 5/13 of the leaves to 8/21 of the fruit. In normal fruit the number of rows of each type of spiral is constant, consisting of eight for the long gently sloping rows and thirteen for short steep ones. The fruit hormones cuts out and the phyllotaxy changes from 8/21 of the fruit to 5/13 of the leaves abnormalities in fruit and top development, such as double fruit, fan tops, multiple tops are the results of irregularities in these hormone driven phyllotaxis change.

This article by John Catlan is reprinted from the January 2004 Orlandiana, newsletter of the Bromeliad Society of Central Florida

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## This and That, Lessons Learned from 30 Years of Growing Bromeliads

Dave Johnston, longtime Florida West Coast Bromeliad Society (FWCBS) member and former president, gave a presentation titled *This & That, Lessons Learned from 30 Years of Growing Bromeliads*. In his more than 30 years of growing bromeliads, Dave has amassed a collection of about 1,500 different species and hybrids (down from a high of about 2,000). In 1990, Dave founded Exotic Landscapes, a full service landscaping business, and Bromeliads 2 Galore, a bromeliad retail business. With this background, Dave was well prepared to share with us lessons he learned over the years about bromeliad horticulture. According to Dave, the big four elements of growing bromeliads are, in order of importance, nutrients, light, soil and water. Below are highlights from his talk. This article is reprinted from the April 2016 newsletter of the FWCBS.

### Nutrients

- Dave stressed that growers should fertilize their bromeliads to enhance the quality of soil needed to transfer nutrients from soil to plant roots.
- Many commercial growers use Nutricote 360, a 360-day time-release fertilizer, because it is formulated for bromeliads and has a consistent release over time. [Editor's Note: The overall length of time in which nutrients are released can be impacted by environmental conditions such as temperature and moisture in the soil.]
- Apply time-release fertilizer to newly potted pups and to supplement nutrients in older potted plants. The pellets should be placed below or at root level.
- Fertilizer packages have three numbers prominently listed on them, typically on the front of the package. The numbers represent the percentage of nitrogen (N), phosphorus (P), and potassium (K) in the fertilizer and are always listed in this order. For example, numbers listed as 18-6-8 means the fertilizer contains 18 % N, 6% P and 8%K.
- Magnesium sulfate (aka Epsom salts) can be added to potted plants to correct magnesium or sulfur deficiency in the soil. It has a high solubility rate and does not significantly change the soil pH.
- Citric acid can be added to potted plants as an inexpensive way to lower soil pH, if needed for nutrients in fertilizers to work.
- Another method to fertilize plants is foliar feeding, a technique of feeding plants by applying liquid fertilizer directly to their leaves. With this method, plants are able to absorb essential elements through their leaves. Apply the mix with a sprayer.
- Foliar feeding works best on Vrieseas, Guzmanias, and Tillandsias, with possible discoloration of Tillandsias, and does not work as well on bromeliads such as Aechmeas, Neoregelias, and Billbergias.

## Light

- The amount of sunlight that works best for a bromeliad depends on the specific genus, species, or hybrid. For some, too much can bleach pigmentation and burn leaves while for others too little light can result in elongated leaves and loss of color. Finding the right balance can be a process of trial and error, especially for plants in the landscape.
- The amount of sun/shade for ornamental plant cultivation can be controlled in a shade house or greenhouse. These structures are also effective in protecting plants from excessive heat or dryness.
- Shade cloth is a lightweight UV-stabilized polyethylene that provides passive diffused light to plants. The white polypropylene fabric is perfect for use with flowering plants that will be affected by longer natural light exposure due to an increase in light quality and duration. It is water permeable, offers good ventilation, and keeps greenhouses cooler. Shade cloth comes in a variety of densities to let different amounts of sunlight penetrate. This is measured by percentage of sun that is blocked out. Most plants will do best with a maximum of 40% to 60% shade.
- White opaque greenhouse polycarbonate films are used in single- or double-layer applications to achieve just the right shade and cooling requirement for a range of horticultural applications. This film has a 55% diffused light transmission per layer, and contains UV protectors.

## Soil

- The 80% of bromeliads that are epiphytes use their roots solely as an anchoring mechanism. But when grown in soil their roots also act as a nutrient uptake mechanism.
- Dave uses Fafard-brand potting soil for his plants. Its ingredients are Canadian sphagnum peat moss, bark, vermiculite, dolomite (limestone), and a wetting agent. The grade he uses is Fafard #4, a versatile middleweight blend that offers a higher degree of water retention Dave needs in his greenhouse. Most growers might find this too wet for their plants, especially for Vriesea and can add perlite to increase soil drainage.
- Soil in a pot can break down in about a year and results in decreasing levels of nutrients and changes in drainage capability. Plants in poor soil will suffer, become unhealthy, and lose leaf luster. To refresh old soil, pull the plant from the pot, shake off the old soil, add new soil and then fertilize.

## Water

- Not all water is equal. Water choices for bromeliads are, in order from best to least desirable are:
  - Rainwater is the best choice.
  - Well water is second best, depending on water quality. Some well water can contain salt minerals that can harm plants.
  - City water contains chlorine, calcium, and magnesium that can stain bromeliads.
  - Reclaimed water is the least desirable because it has salts and chlorine. Some bromeliads might acclimate to it. Most sensitive to it are Guzmanias, followed by Vrieseas, and then Billbergias.
- Rainwater can be collected as runoff from a roof into a cistern, depending on the roofing materials. If the roof is composed of asphalt shingles, it can take up to 15 years of exposure to the elements to bleach harmful minerals out of the shingles. A galvanized metal roof has zinc that can impact the runoff water and burn holes in plants. A metal, baked enamel roof is good to use for collecting runoff but expensive.

[This article will be completed in next month's newsletter]

The BSSF is a non-profit educational organization promoting the study and cultivation of bromeliads. The BSSF meets monthly on the 3<sup>rd</sup> Thursday at 7:30 PM in the Recreation Room of the San Francisco County Fair Building, 9<sup>th</sup> Avenue at Lincoln Way, Golden Gate Park, San Francisco. Meetings feature educational lectures and displays of plants. Go to [sfbromeliad.org](http://sfbromeliad.org) for information about our meetings.

The BSSF publishes a monthly newsletter that comes with the membership. Annual dues are single (\$15), dual (\$20). To join the BSSF, mail your name(s), address, telephone number, e-mail address, and check payable to the BSSF to: Harold Charns, BSSF Treasurer, 255 States Street, San Francisco, CA 94114-1405.

#### OFFICERS and DIRECTORS

President	Carl Carter	<a href="mailto:carl.m.carter@sbcglobal.net">carl.m.carter@sbcglobal.net</a>	510-318-2379
Vice President	Dan Arcos	<a href="mailto:darcos@pacbell.net">darcos@pacbell.net</a>	415-823-9661
Treasurer	Harold Charns	<a href="mailto:Harold@States-Street.com">Harold@States-Street.com</a>	415-861-6043
Secretary	Carola Ziermann	<a href="mailto:carola.ziermann@yahoo.com">carola.ziermann@yahoo.com</a>	925-446-4028
Director	Roger Lane	<a href="mailto:rdodger@pacbell.net">rdodger@pacbell.net</a>	650-949-4831
Director	Jill L. Myers	<a href="mailto:GEZUNDA@comcast.net">GEZUNDA@comcast.net</a>	415-706-7358



#### BROMELIAD SOCIETY INTERNATIONAL

The Bromeliad Society International publishes the Journal bimonthly at Orlando, Florida. Subscription price (in U.S. \$) is included in the 12-month membership dues. Please address all membership and subscription correspondence to Membership Secretary Annette Dominquez, 8117 Shenandoah Dr., Austin, TX 78753-5734, U.S.A. or go to [www.bsi.org](http://www.bsi.org).

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Roger Lane

551 Hawthorne Court  
Los Altos, CA 94024