

Waldor Orchids - May Meeting - Wednesday the 25th

## May Meeting

**Wednesday the 25<sup>th</sup>**

The Lawrenceville Library (Room #1)

Setup and Orchid Clinic start at 7:30

Meeting starts at 8:00

### **GUEST SPEAKER - WALTER OFF**

Walter will be speaking about the 2004 Philadelphia Flower Show. Waldor's display, consisting of 12,000 sq ft., assembled the largest collection of specimen orchids ever shown in North America.

Walter is the owner of Waldor Orchids, which has been a family owned and operated business for four generations. Waldor is the largest provider of orchid plants in the Delaware Valley, serving the finest florists and garden centers with weekly deliveries. Waldor is well-known for its exhibits in many area orchid and flower shows, especially the Philadelphia Flower Show. Displays by Waldor have been featured since the 1930's, making them one of the show's oldest exhibitors.

Waldor's naturalistic showroom and greenhouses in Linwood, New Jersey, are open to the public on Fridays and Saturdays.



**2005 Calendar**

May 25	CJOS Meeting, Walter Off will be discussing Waldor's 2004 display at the Philadelphia Flower Show
June 22	CJOS Annual Potting Party
June 24 - 25	Waldor's Summer Sale 10 East Poplar Avenue, Linwood, NJ (609) 927-4126
July 15- 17	International Phalaenopsis Alliance Presents The Eleventh Phalaenopsis Symposium, 2005 At the Sheraton Suites at Philadelphia International Airport, Philadelphia (details enclosed)
July 30 & 31	Summer Orchid Fest @ Parkside Orchids, Saturday 9am to 5pm & Sunday 9am to 3pm. For more information call 610-847-8039

**Newsletter Deadline is set  
for May 30, 2005!**

Any comments, please address them to the Newsletter editor –

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***Important Orchid Collection To Be Sold at Absolute Auction!***

*The private orchid collection of  
Mrs. Edward 'Nan' Dillon will be sold in its entirety Saturday, June 18, 2005, 10 AM, at the residence,  
797 Darby – Paoli Road, Bryn Mawr, PA. 19010*

*This highly recognized collection contains many specimen and rare, hard to find items and is too large  
to detail here. A complete inventory is underway, and a catalogue will be available soon at the  
auctioneer's website. Estimate of 800 lots!*

*Nothing will be held out!*

*Terms: Cash, Local Check W/ID, Visa/MC. 10% Buyers' Premium*

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**Biology of orchid seed germination**

by Thomas Ederer

Orchid seeds are very small (like dust) and do not contain any food reserves which feed the embryo in his first steps of life like other plants do (e.g. apple, beans). Because of this fact, orchids produce a large number of seeds (up to 1 million in each capsule).



Mature *Phaius tankervilleae* capsule

In nature they start germinating, but they will not grow unless they are infected by a symbiotic fungus (mycorrhizal fungus), which supplies the young plant with the sugar and nutrients they need until the plant is big enough to produce it's own "food". When orchid seeds are starting to germinate, they become little "balls" which are called protocorms. They are normally white when they are young and turn green after a while.



*Encyclia vespa* protocorms

We have germinated seeds of *Epidendrum radicans* which build green protocorms after 2 weeks. *Cyrtopodium punctatum* protocorms took more than 2 months to reach the same stage. The protocorms grow as long as they are strong enough to build the first leaves. When they are big enough to produce their own "food," they don't need the symbiotic fungus any longer.



*Cyrtopodium punctatum*

Symbiotic Germination on the Pod Parent's Roots

This is a very old technique, which was used before *in vitro* culture was discovered. Here we use the existing fungus which is growing on the roots of the orchid where the seed pod is growing. The fresh seeds are sown very close to the roots and are kept moist enough to start germinating. The disadvantage of this technique is that the young plants can be killed by pests so you can't produce high numbers of seedlings.

Symbiotic Germination (*in vitro*)

With this technique, the symbiotic fungus is cultured *in vitro*. The orchid seeds must be disinfected and transferred to the *in vitro* cultured fungus. There the seeds will be infected with the fungus and start to grow. The difficulty with this procedure is to keep the growth of the fungus and the growth of the orchid seeds in balance. If this balance is not



*Cyrtopodium punctatum* *Epidendrum radicans*  
 protocorms with first leaves    protocorms with first leaves



achieved, the fungus will grow too fast and kill the seeds.

Asymbiotic Germination (*in vitro*)

To reduce the risk of loss we don't use the symbiotic fungus to "feed" the seeds. This job will be done by the media on which the seeds are placed. The media supplies the seeds with sugar and nutrients until they are strong enough to produce their own "food".

**How can I get some seeds?**

Before you can start sowing seeds, you have to solve the problem that seeds normally can not be bought in shops. So you have to pollinate your own plants. To pollinate an orchid, the plant should be strong and healthy because building a capsule can take a lot of energy. To start building a capsule, you have to transfer the pollinia of one flower to the stigma of another plant. If you have got only one plant or only one flower you can transfer the pollinia to it's own stigma. Some orchids do not allow self pollination, so we have to try and see if it accepts its own pollinia or not.

Our Pollination Technique

We use wooden toothpicks to transfer pollinia. The best time to pollinate your orchid is when the flower has finished opening. Move the end of the toothpick into the flower and pull out the pollinia. Sometime the pollinia do not stick on the toothpick. In this case you should use a forceps to pull them out. In the next step remove the anther cap and place the pollinia on the stigma, as close as possible to the entry of the stigma channel, of the other flower. Last but not least write down the pollination date and the name of the second plant.

<i>Duration from pollinia transfer till pollination</i>	
Oncidium ampliatum	45 - 50 days
Cattleya bowringiana	60 - 65 days
Dendrobium nobile	75 - 80 days
Encyclia cordigera	120 - 150 days

Basic Rules to Label the Pollinated Flowers

With some examples we want to show you the common way to label seed capsules and plants.

Name: *Cattleya forbesii*  
 Two *Cattleya forbesii* plants, grown from different parents, were crossed (pollinia from plant A was transferred to the stigma of plant B).

Name: *Cattleya forbesii x self*  
 If the pollinia was traded between flowers on the same plant we call it a selfing. When crossing two plants which are grown from one meristem (in vitro tissue culture) or by cutting one plant into two parts it's still a selfing.

Name: *Cattleya forbesii x sib*  
 When crossing two plants which are grown from the same parents we call it a sibling (plants are grown from one seed capsule and this plants are crossed).

Name: *Cattleya forbesii x rex*  
 A *Cattleya forbesii* was crossed with a *Cattleya rex*.

Name: *Cattleya forbesii x Laelia crispa*  
 A *Cattleya forbesii* was crossed with a *Laelia crispa*.

Harvesting Capsules

The seeds inside the capsule have finished their development 3/4 - 4/5 of the time the capsule needs from pollinia transfer to the release of mature seeds. If you want to sow green capsules (*in vitro*) you can harvest them after this time. It's very important that the green capsule has no holes or places where fungi could reach the seeds otherwise they are not free of contamination (fungi, bacteria, etc...).



*Phalaenopsis* (3 months old) *Cleisostoma* (3 months old) *arietinum* (3 weeks old) *Masdevallia* *coccinea* *alba*

For sowing dry seeds, just wait until the capsule starts to open (dehisces) and then harvest it.

<i>Duration from pollinia transfer till harvesting mature capsules</i>	
Angreacum	5 1/2 months
Bulbophyllum	3 months
Cattleya	11 months
Coelogyne	13 months
Cymbidium	10 months
Dendrobium	5-14 months
Disa uniflora	6 - 7 weeks
Doritis	7 1/2 months
Epidendrum	3 1/2 months
Laelia	9 months
Masdevallia	4 months
Miltonia	9 months
Odontoglossum	7 months
Paphiopedilum	4-10 months
Phalaenopsis	6-12 months
Vanda	20 months

## Germination on Bark

### Background Story to This Idea

A few months ago, we read Anton Hefka's book "Cattleyen und Laelien" where he explains how he germinated about 100 years ago (1900) thousands of *Cattleyas* and *Laelias* at the botanical garden Schönbrunn. This was the procedure he used: "Put some pottery shards in a clay pot till they reach one third of the pot's volume. Next, put sphagnum moss on the shards until the pot is two thirds full. Last but not least, fill the remainder of the pot with fresh spruce saw dust pulp and disperse the seeds on the surface of the spruce pulp. Place the pot in a bright but not sunny area in your greenhouse and water it every day. "We tried to reproduce this method, but we were not able to germinate seeds this way. After this failed experiment, we put some seeds of *Pleione spec.* and *Epidendrum radicans* on a piece of bark, and they germinated very well. Within a few months, we had very healthy seedlings. Because of the successful symbiotic germination, we tried to reproduce it with different seeds, but we were not able to repeat a successful germination. The seeds produced protocorms but the necessary fungus was not present and so the protocorms died after a while. A lot of orchid lovers have sent us emails and told us that they are very interested in this method, so we decided to launch a project at the [German orchid forum](#). If there are also English speaking orchid lovers interested, please contact us, and we can try to launch the same projects on an English forum.

### Advantages:

- low costs
- doesn't need much care
- very good to control (microscope)

### Disadvantages:

- takes (sometimes) longer than *in vitro* culture
- low number of seedlings
- doesn't work with all orchids

### The technique we used for our successful germination on bark:

Before we started sowing the seeds, we went to a local forest and collected fresh bark from the weathered (mossy) side of a tree. After that we cut the bark into small pieces (about 5 x 5 cm) and put them in rain water for one hour. Next, we dispersed the seeds on the moist bark and placed them in a modified plastic bottle as you can see in the picture (right).

### Further care:

Place the bottle containing the bark on a bright but not sunny area and water the bark as soon as it starts to become dry. It is important to let the bark dry out slightly before watering again. We water every morning.

*This article was reprinted with permission by Lotte & Thomas Orchids:*

<http://www.orchideenvermehrung.at/>



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Unless stated otherwise, CJOS meetings are held on the fourth Wednesday of each month (Sept. – June) at the Lawrence Library in Lawrenceville, NJ. Contributors to this newsletter gave written permission for reprint. All materials for the newsletter should be mailed to: Mr. Brandon Forsht, 1832 Jacksonville-Jobstown, Columbus, NJ 08022

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