

Lesson 2: Emasculation and Pollen Collection



Texas A&M University Rose Breeding and Genetics Program
Lesson Series in Rose Hybridization

Objectives

- **Identify flower at stage for pollen collection**
- **Master emasculation technique**
- **Collect pollen and prepare pollen for use**

Pollen

Pollen grain + Egg = New Rose

Pollen carries the male gametes to the egg cell (female gamete)

$\frac{1}{2}$ of the DNA in the new rose will come from the pollen grain



Emasculation

Emasculation: Removal of the anthers

WHY DO WE EMASCULATE?

- **To ensure that no unwanted pollen reaches the stigma**
- **To remove anthers in order to collect pollen for desired pollinations**

Emasculation Procedure

Materials Needed:

1. **Small scissors (embroidery or cuticle scissors)**
2. **Receptacle to collect pollen**
examples: baby food jars
empty pill bottles
3. **If collecting pollen, pen to label pollen receptacle**

Emasculation Procedure

Choosing your flower...can be tricky

Characteristics of the right flower:

- 1. Sepals unfurled**
- 2. Petals closed (covering the stigma)
BUT.....**
- 3. Petals on the verge of opening**

Okay, great. So what does this look like?

Emasculation Procedure

Let's say you have chosen St. Patrick as your pollen parent.

St. Patrick is a Hybrid Tea with 25+ petals



Important!

The more petals, the more you must allow the flower to open before you attempt emasculation.

Emasculation Procedure

But let's say you have chosen Dortmund to emasculate.

Dortmund is a single flower, meaning it has only 5 petals.

So...

With only 5 petals covering the stigma, you will emasculate at this stage.

The less number of petals, the sooner you emasculate.



Emasculation Procedure

You've got a flower at the correct stage, now remove its petals.

(They can always be dried for potpourri!)

Simply hold the flower stem with one hand and grasp the petals from above and gently pull.



Emasculation Procedure

Now, take your scissors and cut the filaments.



Correct emasculation

Now what?

1. Place your filaments in your labeled receptacle.
2. Or discard them if you have no use for the pollen

Congratulations! You have learned 2 procedures in one:

You have prepared your flower for pollination (We'll learn this in the next lesson)

And, you have learned how to collect pollen without destroying the flower (meaning you could pollinate it with a different pollen)

Another way to collect pollen...

If you're not planning to pollinate the flowers from which you're collecting pollen, simply...



**1. Collect unopened buds
(You should be able to
see the petals!)**



**2. Remove petals and pick off
filaments into a labeled receptacle**

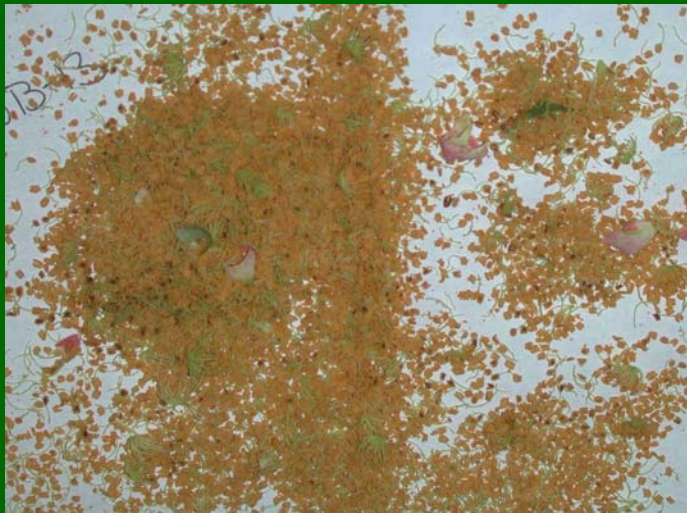
Pollen Collection

Now, you have your anthers and filaments.

Leave them in an unopened labeled receptacle for 24 hours

Requirements: No wind, No insects!

Therefore, a draftless room indoors is ideal.



In our lab, we place our pollens in labeled paper “boats”—recycled white paper with the edges folded up.

Pollen Collection

- 1. After 24 hours, place pollen in LABELED airtight container**
- 2. Place labeled container in a freezer safe container**
- 3. In the freezer safe container, add a desiccant such as silica gel or kitty litter**
- 4. Place in freezer**

Your pollen should remain viable for a year!