

**Sending in your new plant**

**1** Once you are happy that your plant is suitably different to any others available or that a high percentage of the seed comes true, you are ready to send in a sample.

**2** If you wish to send cuttings (if you have chosen the vegetative route), send them in a zipped plastic bag with holes punched in the top for air movement. The area around the roots should also be wrapped in damp tissue, so that the plants do not dry out.

**3** Then simply label your seeds/plants, and package in either a small box or envelope and send by first class mail.

**4** Always keep some seeds or plants in your possession, in case anything is lost in transit.

**5** Your submission should be sent with the entry form below. Please try to post your entry early in the week, so that weekend postal delays are avoided.

For advice about your new plant creations,

Call our helpline **01473 695208** or email images to **creations@thompson-morgan.com**

**Customer Trials Entry Form**

Please complete the trials report and send it to the address overleaf, along with the seed/cutting(s)/plant(s) and a colour photograph. A letter of acknowledgement will be sent to you upon receipt of the seed/cutting(s)/plant(s).

Send to:

**Michael Perry, New Product Development Manager, Thompson & Morgan, Poplar Lane, Ipswich, IP8 3BU**

For a full copy of our terms and conditions, please see our website.

Enclosed: SEEDS / PLANTS / CUTTINGS (please circle as appropriate)

Your full name

Address including postcode (& country if this is not the UK)

Postcode  Country

Telephone

Email

Species name (e.g. Dianthus barbatus hybrid)

Type (e.g. HP, HA, HHA etc.)

Parents (e.g. Dianthus barbatus x caesius or 'Selected from Godetia 'Dwarf Mixed')

Description (stating its special or improved characteristics)

Special Use/s (e.g. pot plants, bedding plant, cut flower, border plant etc.)

Flowering period and date it starts flowering

Flower size  Double /Single

Flower colour

Plant height  Spread  Habit

Foliage colour

Additional Information / Special Instructions (Please supply any further information that you feel relevant)

Have you kept any of the seed or plants for yourself?

Have you remembered to enclose a photograph?

**Be inspired by these customer-grown plants**

**1. Petunia 'Fireworks'**

A T&M customer sent us the first star-shaped petunia, a white-flowered petunia that was very different from the normal round-flowered ones. The new flower shape is now available in an array of colours, but it all started from the one plant discovery!

**2. Nasturtium 'Flame Thrower'**

Another customer spotted a nasturtium that was different from any other, and T&M introduced this new flower shape into other nasturtiums by using the cross-pollination method. In order to fast-track market release of this very new nasturtium, we then used vegetative breeding and took cuttings from the very best plants.

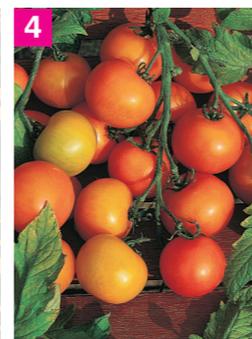


**3. Marigold 'Mr. Majestic'**

One of our customers in Scotland sent in some seed of a tall, border marigold with unusual, striped blooms that they had found growing in their garden. We then crossed the plant with a modern, dwarf variety in order to reduce the height, and achieve a more compact habit.

**4. Tomato Sungella**

A keen customer tried his hand at vegetable breeding when he crossed small-fruited, extra-sweet tomato variety, Sungold, with a larger type. The result is lovely, large-fruited fruits without the bitter tang of some tomatoes.



**5. Foxglove 'Primrose Carousel'**

A customer in Suffolk spotted an unusually short and compact foxglove, with primrose yellow blooms appearing in whorls all around the stem. Thinking this was very unusual for a foxglove, the customer sent the seeds to us and our breeders further selected the original plant for 2-3 years in order to stabilise the habit, form and colour.



**6. Sweet Pea 'Ballerina Blue'**

An amateur breeder raised this divine blue sweet pea and entered the variety into RHS trials in 2002 and 2003, winning awards each time. They came to Thompson & Morgan for help in launching the variety. From a handful of seeds to a major catalogue introduction took 7 years. It is now Thompson & Morgan's Flower of the Year in our seed catalogue range.

**How we pay your reward**

After a trialling process with Thompson & Morgan (which can take anything from 6 months to 6 years), we will contact you to discuss your plant. We currently pay £500 for each successful entrant, rewarded as a lump sum when the product goes on sale.

At Thompson & Morgan's discretion, outstanding or rare new products could receive more. We ask that the originator agrees to be involved in any subsequent publicity about the new plant.

TM1142

**£500 Reward**  
*or more!*  
 when you find or create a new plant  
 It's so easy with our step-by-step guide

**Have you got a new plant?**

**Do you have a flower or vegetable growing in your garden that's:**

- **A different shade to the one expected?**
- **Are the blooms larger, double or uniquely shaped or patterned?**
- **Is the plant taller or shorter than usual or particularly compact?**
- **Is it climbing or trailing more than usual?**
- **Is there an unexpected fragrance?**
- **Is it flowering out of season, or for longer than usual?**

**YES - you might just have something special, move straight to STEP C overleaf.**

**NO - go to STEP A and B overleaf and try your hand at plant breeding to create your own new plant.**



**You can do it too!**

Plant breeding is not merely for boffins working in sterile laboratories or elaborate glasshouse breeding stations. Breeding can be fun and very rewarding and every plant you raise has the potential to be unique. The basic skills for plant breeding are patience and good observation.

You do not need much room or space. Some gardeners have vied with each other to produce the ideal new plant in only the tiniest of back gardens. Plants like geraniums, dianthus, nasturtium, fuchsias, petunia and many others can be grown in pots and will take up little space.



**A**

### The 'Selection' Method

Many new varieties have arisen in the past from the observation of an improved or different type growing in a larger batch of plants. The more plants of one type you grow, the more chance there is of finding something different or unusual.

#### 1 Select your plant

Be observant as you go around the garden, looking out for anything unusual, e.g. more petals than normal, some variation in flower size or colour, or differences in plant height or habit. When you see it, label the plant, describing its important characteristics (e.g. double flowers, dwarf etc.) and try to isolate it from other similar plants so that no cross-pollination occurs (see step 2).

#### 2 Isolate your plant

Isolation prevents your special plant from being pollinated by its neighbour. This can be done by enclosing a number of flowers (still attached to the plant) within a large insect-proof bag, either netting of some sort, grease-proof paper, or a plastic bag with small slits for ventilation (fig.1). Ensure there is no gap at the base of the bag for insects to get in. Use a soft wire twist or string to secure the bag but be sure not to bruise or damage the stem of the flower.



Fig.1 Avoid unwanted pollination by protecting your blooms

Another way of isolating a plant is to carefully dig it up with minimum root disturbance, pot it on, and move it a good distance away. Be sure the plant is sufficiently watered during this process. High obstacles like a tall thick hedge form a good isolation barrier, preventing bees or other insects from cross pollinating the plants.

#### 3 Ensuring your plants produce seed

Isolated plants or flowers will often still need to be pollinated to ensure that the seed will set. To do this, the flowers should be 'self-pollinated'. This is when you use the same flower or a flower of the same plant to pollinate with. For instructions on pollinating, see the "how to pollinate" section.

Although self-pollination naturally occurs in some plants, other types like Poppy (Papaver) or members of the Daisy (Compositae) family will not self-pollinate. This is due to self-incompatibility, an in-built mechanism in the plant that prevents self-pollination from occurring. If the plant is self-incompatible, you can select a second similar looking plant and cross the two together.

#### 4 Harvest your seed

When the seedpod is ripe (fig.2), it is best placed with a label into a seed packet and stored in a cool, dry place. Later, the seed should be extracted, cleaned and placed in a packet labelled with the name, special characteristics of the plant and date of harvesting.



Fig.2 Once the seedpod turns darker and brown, it is ready to harvest

#### 5 Further selection

The following season you should sow the seed that you have harvested. Once they germinate, prick out as many seedlings as you can, thereby increasing your chance of good results.

Try to plant the seedlings away from other plants of the same type. As the plants grow and develop, pull out any that do not resemble your original selection (referred to as 'rogues'), do this immediately before they cross-pollinate. You may be left with only a few plants which fit your aim. You could then leave the bees to cross your selections.

Harvest the seed of your plants separately, for best results. The selection process may take two or more seasons. It should continue until all or most of the seed sown produces plants resembling your new type very closely.

### Handy Hint

Find out as much as possible about the genus or species you are working on before you start. This is also a good way to check that there are no similar plants already in cultivation before you submit your entry.

#### Did you know?

Poppy 'Angels Choir' is a good example of the 'eyes open' method; the first variety of this type was actually seen growing in a field of red poppies. Wild flowers in the hedgerow or the plants in your garden may unexpectedly produce something different every so often, this is referred to as a 'sport'.



**B**

### The 'Cross-Pollination' Method

When you deliberately set out to create a new plant variety, cross-pollination is an invaluable method in breeding. As an example, you could potentially create a dwarf yellow flowered plant by crossing two plants of the same genus, maybe a tall yellow flowered plant (x) with a dwarf red flowered one (y). Or you could try crossing an annual with a perennial.

#### 1 Making your cross

In year one, you will need to cross plant x with y or vice versa, following the pollination method shown within this guide. At the end of the season, harvest the seed.

#### 2 Grow out your initial results

In year two, sow the results of the cross (referred to as the F1 generation) and grow in an isolated area and then harvest seed from these plants.

#### 3 Sow the harvested seed from the cross

During the third year, you should sow out the harvested seed. This next generation (referred to as the F2) is where you should see the results of your original cross. Select plants that have the desired trait (using our above example, these would be plants that are dwarf and have yellow flowers). Once selected, the plants can be self-pollinated (pollinating the same flower with itself, or using a flower from the same plant). If they are self-incompatible, then they can be crossed with a plant with very similar characteristics.

#### 4 Improve your variety by selection

In the subsequent years following your hybridization, you should use the selection method to get your seed true to type. Remember to sow the seeds of individual selections separately to increase your chances of attaining seed true to type quicker.

#### 5 If it isn't working

Sometimes you may have a problem with your desired plant trait not coming through into the offspring. You

may need to 'back-cross' some of the crossed plant selections with the original parent (either x or y, whichever has the characteristic that you are having problems with). The term back-cross simply refers to the method by which seedlings or offspring are cross-pollinated back onto one of the parents involved in the original cross.

### Handy Hint

It is very important to label your plants accurately, and to also keep a small sample of seed from every stage of the breeding, in case you encounter a failure and need to retrace your breeding steps.



**C**

### The 'Vegetative' Method

This 'fast-track' method can be used on occasions when you've already found a unique plant. It means you can replicate your plant without the need for any additional breeding work.

1 If you spot an unusual plant out of a bunch of seedlings, either as a selection or from the result of the 'cross-pollination' method, you can often reproduce the plant vegetatively (by cuttings).

2 Simply take cuttings from the plant, preferably using material from near to the base.

3 You should also try to avoid using the tips of any shoots that have buds or flowers, as they will produce poorer plants.

4 Package your cuttings as instructed on the entry form.

5 Send them in to Thompson & Morgan for assessment.



Take cuttings of only the best material

## A guide to the skill of pollination

#### When to do it:

Mid-morning is usually a good time to pollinate flowers. There is no dew on them and temperatures are adequate for the pollen to be effective. Avoid pollinating on a wet day, as any water on the pollen will kill it.

#### How to do it:

1 Grow a bed of each of the two plant types to be crossed. On the plant you intend to pollinate, use any buds or flowers that have colour in them, but have not yet opened.

2 Open the buds and remove the anthers containing pollen (fig.1 & 2). Dust pollen from the plant to be used as the pollinator (fig.3) onto the stigma of the one to be pollinated (fig.4).

Members of the Compositae (Daisy) family, e.g. Rudbeckia, Chrysanthemum, Tagetes and Dahlia have flowers made up of many tiny florets that open from the outer edge in towards the centre. These small florets should be pollinated on consecutive days as they open inwards.

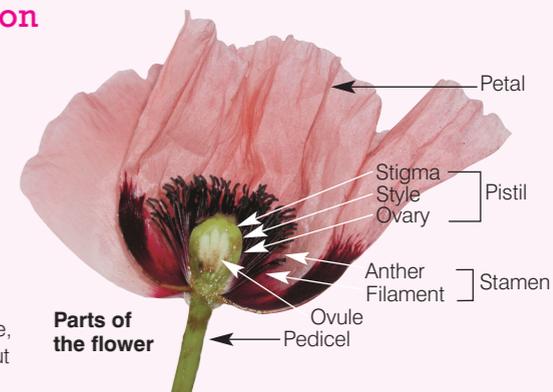
3 Plants can be pollinated either using a paintbrush or in some cases by rubbing the two flowers together. You can sometimes tell when the stigma is at its most receptive by the presence of a sticky or shiny solution appearing on the tip. In some plant types the stigma can also swell or change shape when receptive.

4 As you pollinate each flower, cover it with a bag or place an insect proof cage over the whole plant (see 'Isolating your plant' under The 'Selection Method' section).

5 Once successful fertilisation has occurred, plants have various trigger mechanisms which indicate success. Some will drop petals, on others the stigma will blacken and shrivel. After a period of time the ovule where the seed forms will begin to swell and ripen. Continue with more pollinations on other flowers as they open and label each cross with a lightweight label marked with pencil.

#### F1 Hybrids

When using cross-pollination, avoid the use of F1 hybrid varieties as they often have very involved parentage, which can slow down breeding in the early stages. F1 hybrids can, however, be a good source of variation when using selection to find new material.



Parts of the flower



Fig.1 Prepare the bud for pollination by removing the anthers



Fig.2 The flower is now ready for pollination



Fig.3 Collect the pollen from another plant



Fig.4 Pollinate your flower with the collected pollen

## Explanation of terms

**Back-Cross** When you have problems 'fixing' a particular trait within a plant, you can cross it back with your original parent plant that had the desired trait.

**Cross-Pollination** Simply the process of transferring pollen from one plant to another, in order to create a hybrid.

**F1 Generation** The result of the first cross-pollination between two plants.

**F2 Generation** The result of the seeds saved from the first cross.

**Roguing** This is the process of discarding any unwanted plants that do not show the characteristics you are looking for in your breeding work.

**Selection** A breeding method that relies on close observation, you simply harvest seed from unusual or different plants that arise in the garden. You then select the best plants from the harvested seed, and so on.

**Self-Incompatibility** When a plant is unable to set seed after it has been self-pollinated.

**Self-Pollination** To 'fix' certain traits in a plant, you can pollinate it with itself. Self-pollination is the action of transferring pollen from a flower onto the stigma of a flower on the same plant.