Seed Germination Culture Tips

The most important stage of raising any crop from seed is the germination of the seed itself. Strong, healthy seedlings will develop into the best quality plants, but unless the various preparations and principles are carried out correctly, the likelihood of problems occurring is increased, and the cost of production will be unnecessarily raised. The following steps, if carried out correctly, will ensure that the best results are obtained.

Seed Forms

Order seed in good time so that it can be sown on time. Delays may result in a missed marketing opportunity. Always buy good quality seed which has been laboratory tested. All Ball Colegrave seed is assessed and tested by specialist staff.

Seed is often available in many different forms. Ball Premier Line seed has been enhanced to give better production performance.

Primed Seed

Primed seed has been incubated in ideal conditions to start the germination process. It is then dried back for storage and is ready to go when you are! You'll see faster emergence, improved uniformity for more usable seedlings, greater tolerance to sub-optimal conditions and longer shelf life (when stored unopened in a refrigerator).

Pelleted Seed

Pelleted seed makes small seeded species easier to sow with precision seeds, leading to accurate sowing and more uniform seedling stands.

Cleaned Seed

Cleaning seed increases purity reduces sources of disease and removes unwanted parts of seed coat which can block machines.

Clipped Seed

In Marigolds, the seed tail which can carry disease is mechanically removed from the viable part of the seed. For optimum results, use clipped and coated Marigold seed.

Coated Seed

Seed is encapsulated in a water-soluble, brightly coloured film coat to increase visibility, handling (particularly seed normally difficult to sow through automatic seeders), and health through incorporate fungicides.

Graded Seed

All seed populations contain seed of variable quality and potential. Dead and inferior material is removed so the concentration of higher quality seed is increased. Graded seed offers greater and more uniform emergence for fewer empty plug cells, reduced disease, improved plant quality and reduced cost.

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Anti-Fungal Seed Treatments

By attacking fungal problems at source, vulnerable seedlings are protected from day one. All annual Lobelias are heat treated to kill fungal infection within the seed; fungicide coatings/dressings are applied to several other classes.

Dormancy Breaking Seed Treatments

Seed populations, especially of perennial items, may be totally or partially dormant. The treated seed begins to germinate as soon as it is sown. Emergence occurs without the need for prolonged pre-chilling - more control and convenience. Greater emergence with greater uniformity means dramatically more plants.

Handling Seed

Storing seed without losing seedling emergence potential needs carefully controlled humidity and temperature conditions. Seed will not keep for long periods of time and remain in good condition. If you have to store seed, place unopened packets in cold conditions. To keep seed fresh, reseal your hermetically sealed packet and place in an airtight plastic container. (see below for more detailed seed storage information)

Hygiene

The propagating area and equipment must be scrupulously clean. At the start of the season, wash down and sterilize all benches and pathways etc. Make sure that watering systems and associated fittings do not contain algae or contaminated water.

Containers

Whether using seed trays or modules, always use new containers each season. Many of the common fungi which can affect seedlings can be carried over in compost which sticks to previously used trays etc.

Compost

Use fresh clean compost every time. Avoid the temptation to reuse compost which has raised one batch of seedlings. The compost should have an open structure and be relatively free draining. Specialist fine grade seed compost is best where nutrient levels are balanced for germination and young seedling growth.

It is a good idea to use a pre-sowing fungicide drench on the compost. The main disease problems will be from Rhizoctonia and Pythium which lead to damping off.

Preparation

Fill the tray or module to level and tap gently to settle the compost. Water (or fungicide drench) the tray thoroughly, using clean watering equipment and allow the compost to drain before sowing.

Sowing

Sow thinly and evenly on the surface of the compost. Seed that is sown too thickly will be difficult to transplant and root damage is likely. When hand sowing, aim to sow the required amount of seed in two sweeps of the tray unless you are sufficiently skilled to achieve uniform distribution in one sweep. When sowing by machine into plug units seed(s) should be placed centrally in the plug cell.

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Covering

Not all seed requires to be covered, particularly items such as Begonia semperflorens or Lobelia which have very fine seed. If in doubt, cover to the depth of the seed itself, using compost or a medium grade horticultural Vermiculite. This is recommended as it retains moisture during germination and allows some light to get through once the seed coat has split. All sowing instructions for most varieties are provided in your seed catalogue.

High humidity levels should be maintained in the trays by either covering e.g. with polythene or placing in a relative humidity of over 90%. If the surface of the compost is allowed to dry, then germination will be affected. Some species will germinate best in the dark and, therefore, black polythene can be used, remembering that this will absorb heat in some instances.

Temperatures

Temperature has a great effect on the germination process. Different species have different optimum temperature ranges at which germination is best. Once outside the optimum temperature range, the number of seedlings which will emerge from the seed is reduced. An air thermometer placed some distance above the bench will not give an accurate reading for germination temperature. It is the compost temperature at seed level which is important.

Management

Check temperature and moisture levels daily. As soon as germination has taken place, remove any covering and place in the light so that the seedlings do not become leggy. Keep accurate records of sowing dates and early seedling growth in your own conditions. This will enable you to plan future sowings and avoid bottlenecks at the transplanting stage.

Facilities

Wherever possible, use a heated bench or growing room with a reliable thermostat. For detailed information on the construction of these contact your local sundries supplier.

Ball Colegrave Limited recommendations for optimum seed germination conditions are shown in the current catalogue.

Storage of Seed – protect your investment

Seed quality is subject to deterioration over time. The rate at which quality is lost depends on the conditions seeds are exposed to. Temperature and humidity are the primary factors that influence deterioration of seed quality over time.

Seed vigour is sensitive and can be shown to decline with storage time. After a certain period of time a seed lot will have no value to you, despite your best cultural efforts. Failure to obtain good emergence rates is sometimes the result of prolonged storage of seed under the wrong conditions.

Most flower seeds can be kept at a relative humidity levels between 25% – 35%, which will keep seed dry with around 5% moisture content by weight. Temperatures below room temperature are preferred, cooler than 60°F (15°C), with an emphasis on lower temperatures towards 40°F (5°C). Ideally seed should remain under such conditions until sowing.

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Seeds take time to adjust to storage conditions. This adjustment depends on the packaging material, seed composition and air movement around and through the seed. Seed packaged in foil packets will not adjust to surrounding humidity conditions. Conditions should be as stable as possible since fluctuations can stress seeds.

It is important to appreciate that seeds of different crops have different built-in shelf lives. The shelf life is like a biological clock that causes vigour to be lost with each tick. It is possible to slow down this clock by providing good storage conditions thus slowing down the rate at which vigour is lost. Maintaining these conditions are particularly important with short shelf-life products like primed flower seeds.

No matter how good your storage conditions are, shortening the total storage time is recommended. It is crucial to ensure your seed supplier is delivering you "freshness" from the moment the seed is harvested until you receive the packet on your nursery. You need the confidence the seed has been handled under the best conditions.

The Ball Colegrave seed storage facility is recognised amongst the best in the world, hold seed at optimum temperature and humidity for maximum performance in production. Seed is then packaged in a hermetically re-sealable packet to retain the freshness and increase the storage life of your seed.

Good planning of your seed requirements and programming this delivery with your supplier always achieves the best results and helps protect your investment in seed quality.

Storing smaller amounts of seed on a nursery can be managed quite easily. Here are some basic rule of thumb tips:

1. The hermetically sealed packets supplied to you from Ball Colegrave can be kept in a cool place until opened.

2. Once the seed packet is opened, use seed as soon as possible.

3. Note the date opened on the seed packet for reference.

4. Reseal immediately after use and keep in a cool place.

5. Ideally place into a refrigerator set to maintain the temperature between 5-10°C

6. For longer-term storage it is important to handle the seed more carefully and prepare it for storing. Place your seed in a jar or plastic container with silica gel to absorb some of the moisture from the air. After 1 hour the seed should have come to equilibrium. Seal the jar or container with the lid. Position in the refrigerator set to between 5-10°C.

7. It is important to note that to achieve and maintain the ideal humidity of 25-35% for your seed once opened would require specialist humidification equipment. The best practice is to open the packet immediately before you need to use the seed and reseal the packet with its special seal immediately after use, then place back in the refrigerator.