1. Upon Arrival

Let the roots thaw out slowly

Most plants are shipped frozen at 28°F (-2°C) to keep them dormant. If the plant material is still frozen upon arrival please leave it in a cool, dry place to thaw out slowly so that it is able to adapt.

Plants need fresh air: open all boxes and bags immediately upon receipt, but prevent dehydration.

Temperature and condensation will build up inside closed boxes, causing sprouting and rotting. However, plant material in open boxes can dry out easily, so ventilation should be minimal and prevent direct sunlight at all times.

Check the condition of the roots in the boxes daily.

Plants that have started to sprout must be planted immediately. If any sign of fungal or bacterial infection is suspected, plants can not be stored anymore. Infected parts must be removed and the plants treated with fungicide and/or bactericide.

Items that do not tolerate storage must be planted immediately.

Do not leave the plant material longer than necessary in the boxes and bags, for storage will reduce vigor for every species. If unable to transplant immediately, store in a cool place (2-8°C/36-46F). When stored at higher temperatures with lower humidity, the vigor will be reduced dramatically. At temperatures higher than 68°F (20°C), the roots must be planted within 24 hours.

2. Planting

Do not plant roots that are still frozen.

Frozen roots are not able to transport water to the buds. If the buds have thawed out before the roots have, they can be damaged by dehydration. Do not force thawing as this will create stressful conditions to the roots and buds.

Handle the roots with great care to avoid breaking of buds and/or roots.

Some species have fragile buds and/or roots. Breaking off may decrease plant size.

Don't let roots dry out during potting.

Prevent dehydration of the roots by planting them right away after you have taken them out of the box. Serious damage to fine-haired roots like Epimedium or Phlox can be done in 10 minutes, **they can dry out in 20 minutes!** Make sure the potting room is free of draught. Always cover roots during breaks.

Rootpinching

Some plants root better if the roots are pinched (see table)

Soil

It is necessary to use a well-drained potting soil to avoid roots staying wet, which can cause them to rot. Many problems come from a lack of adequate drainage. Don't give plants fertilizer before they are actively growing.

Firm the soil around the roots: prevent air pockets

Roots should be centered in the pot and spread out evenly, with all roots facing downward. There must be good contact between all parts of the roots and the soil. Firm the soil around the roots. All of this is necessary for the roots to absorb water and nutrients.

Many perennials should be planted "high"

Results of experiments conducted by Dr. Bill Miller of the Cornell University suggest that many perennials should be planted with the crown (intersection of the roots and the shoots) at or slightly **above** soil level, after watering and settling. Some plants such as Geranium Ballerina showed an almost absolute adversion to deep planting (1/2 to 1" deep) with a nearly 100% loss. High planting, on the other hand, resulted in nearly 100% survival and good growth (Handling Bareroot Perennials, Growertalks, May 2004, by W.B. Miller and A. Bestic). The most important reason for this, is that plants will receive daylight sooner than when they are planted too deeply. With daylight, plants make energy, which they need for growing. Also, when planted too deeply the crown may stay too wet for too long, which can cause them to rot.

3. After Planting

Water carefully.

After planting in early spring, do not water the first week: in this stage the roots can only accept little moisture and need to be stimulated to look for water. After this, slowly start with watering.

Also, the young shoots are especially vulnerable to overwatering before they appear above the soil: in this critical phase, over watering may cause suffocation of plant parts or damping-off diseases. Be extra careful with irrigation at low temperatures: plant growth is slower, therefore this critical phase lasts longer. Some plants need a dryer start than others. Once the plants have started to grow, revert to a **regular** watering schedule. Some plants prefer to be grown "dry," others "wet" (see table). Keep the soil moisture as constant as possible; too much fluctuation will harm the plant.

Fungicide drench

A fungicide drench applied on plant material one to two weeks after planting can prevent problems.

Greenhouse conditions

In early spring, plants have different requirements regarding temperature. Some plants prefer a cold start (35°-55°F / 2°-12°C), some a medium cold start (45°-65°F / 7°-18°C), others a warm start (60°-75°F / 16°-24°C). Prevent the young shoots from freezing at all times: some plants won't give you a second chance! Ventilation in the greenhouse is very important: little ventilation will cause problems with mildew and fungus.

Claims

Freight: Concerns over delayed or damaged shipments must be reported on the carrier's bill of lading in order to be considered. Report your concerns to our office immediately.

Product: We guarantee all plants are true to name and of good quality when shipped. Any quality concerns or shortages must be reported to our office within 10 days of receipt of order to be considered. For any product claims or disputes, we shall be held liable for plant cost only and in no case shall be liable for any cost greater than that. If you received plants that are non-viable or did not break dormancy, you have 60 days to submit a claim for it to be considered.

www.kebolplants.com

Watch our Video:
How To Plant Bare Root

Watch step-by-step instructions for planting your bare root perennials.

www.darwinplants.com

Plant Table

P = Priority Planting Y= Root Pinching

genus	P	Planting Depth	Start	Start	Grow
Acanthus		crown at soil level	45-65F	7-18C	dry
Achillea	Y	just below soil level	35-55F	2-12C	dry
Aconitum	Y	just below soil level	35-55F	2-12C	
Agapanthus	Y	just below soil level	60-75F	15-24C	
Alchemilla		just below soil level	35-55F	2-12C	
Allium		2-4cm or 1" Below soil level	35-55F	2-12C	
Anchusa		crown at soil level	35-55F	2-12C	
Anemone	Y	just below soil level	35-55F	2-12C	
Aruncus		just below soil level	35-55F	2-12C	wet
Aster	Y	just below soil level	35-55F	2-12C	dry
Astilbe		crown at soil level	35-55F	2-12C	wet
Astrantia		crown at soil level	35-55F	2-12C	wet
Athyrium	Y	crown at soil level	35-55F	2-12C	
Belamcanda		eyes at soil level	35-55F	2-12C	
Bergenia		crown at soil level	35-55F	2-12C	wet
Bletilla		crown at soil level	35-55F	2-12C	
Brunnera	Y	crown at soil level	35-55F	2-12C	
Campanula	Y	just below soil level	35-55F	2-12C	
Canna		crown at soil level	60-75F	15-24C	wet
Calla		eyes at soil level	45-65F	7-18C	
Centaurea	Y	crown at soil level	35-55F	2-12C	dry
Chelone		2-4cm or 1" Below soil level	35-55F	2-12C	
Cimicifuga		just below soil level	35-55F	2-12C	wet
Clematis	Y	just below soil level	35-55F	2-12C	
Convallaria		crown at soil level	35-55F	2-12C	
Cosmos atro.		just below soil leverl	60-75F	15-24C	
Coreopsis	Y	crown at soil level	35-55F	2-12C	dry
Crocosmia		5-7cm or 2-3" below soil level	45-65F	7-18C	
Dahlia		eyes at soil level	60-75F	15-24C	
Darmera	Y	just below soil level	35-55F	2-12C	
Delphinium	Y	just below soil level	45-65F	7-18C	
Dicentra	Y	crown at soil level	35-55F	2-12C	
Disporum		crown at soil level	35-55F	2-12C	
Dodecatheon		eyes at soil level	60-75F	15-24C	
Dryopteris		eyes at soil level	45-65F	7-18C	
Echinacea	Y	crown at soil level	45-65F	7-18C	
Epimedium	Y	crown at soil level	45-65F	7-18C	wet
Eremurus		eyes at soil level	45-65F	7-18C	
Eryngium	Y	just below soil level	60-75F	15-24C	dry
Eupatorium		just below soil level	35-55F	2-12C	wet
Filipendula		crown at soil level	35-55F	2-12C	wet
Geranium	Y	Crown at soil level	35-55F	2-12C	
Geum		crown at soil level	35-55F	2-12C	dry
Gillenia		crown at soil level	35-55F	2-12C	
Helenium	Y	crown at soil level	35-55F	2-12C	
Heliopsis	Y	just below soil level	35-55F	2-12C	dry
Helleborus	Y	crown at soil level	35-55F	2-12C	
Hemerocallis		crown at soil level	35-55F	2-12C	
Heuchera	Y	eyes at soil level	35-55F	2-12C	
Heucherella	y	crown at soil level	35-55F	2-12C	
Hosta		crown at soil level	35-55F	2-12C	
Incarvillea		crown at soil level	60-75F	15-24C	
Iris		Crown at soil level,	35-55F	2-12C	wet
Iris		except I. Louisiana (just below)	35-55F	2-12C	
Kirengeshoma		just below soil level	35-55F	2-12C	
Kniphofia		eyes at soil level	45-65F	7-18C	
Knautia		eyes at soil level	35-55F	2-12C	
Lavatera	Y	just below soil level	35-55F	2-12C	
Liatris		7-10cm 3-4" below soil level	45-65F	7-18C	
Ligularia		crown at soil level	35-55F	2-12C	wet
Lilium		10 cm or 4" below soil level	35-55F	2-12C	
Lobelia	Y	crown at soil level	35-55F	2-12C	wet
Meconopsis	Y	eyes at soil level	35-55F	2-12C	wet
Melittis		eyes at soil level	35-55F	2-12C	
Mertensia	Y	crown at soil level	35-55F	2-12C	wet
Monarda	Y	eyes at soil level	35-55F	2-12C	
Mukdenia		eyes at soil level	35-55F	2-12C	
Omphalodes	Y	crown at soil level	45-65F	7-18C	
Paeonia		eyes at soil level	35-55F	2-12C	
Papaver	Y	crown at soil level	35-55F	2-12C	
Penstemon	Y	crown at soil level	35-55F	2-12C	dry
Perovskia	Y	crown at soil level	35-55F	2-12C	
Persicaria		eyes at soil level	35-55F	2-12C	
Phlomis		crown at soil level	45-65F	7-18C	dry
Phlox	Y	eyes at soil level	35-55F	2-12C	
Polemonium	Y	crown at soil level	35-55F	2-12C	
Polygonatum		just below soil level	45-65F	7-18C	
Potentilla		crown at soil level	35-55F	2-12C	dry
Primula	Y	crown at soil level	35-55F	2-12C	
Pulmonaria	Y	crown at soil level	35-55F	2-12C	dry
Ranunculus		crown at soil level	35-55F	2-12C	
Rodgersia		just below soil level	35-55F	2-12C	wet
Rudbeckia	Y	crown at soil level	35-55F	2-12C	
Salvia	Y	crown at soil level	35-55F	2-12C	
Sedum	Y	eyes at soil level	35-55F	2-12C	dry
Sidalcea	Y	crown at soil level	35-55F	2-12C	
Symphitum		eyes at soil level	45-65F	7-18C	
Silene		crown at soil level	35-55F	2-12C	
Thalictrum	Y	just below soil level	35-55F	2-12C	wet
Tradescantia		crown at soil level	35-55F	2-12C	wet
Tricyrtis		just below soil level	35-55F	2-12C	
Trollius	Y	crown at soil level	35-55F	2-12C	
Tanacetum		crown at soil level	35-55F	2-12C	
Uvularia		just below soil level	60-75F	15-24C	
Veronica	Y	crown at soil level	35-55F	2-12C	
Veronicastrum		just below soil level	35-55F	2-12C	