

## Forcing in boxes or pots



### Nine-degree (pre-cooled) and non-cooled tulips

Depending on the required flowering period and cultivar, the bulbs receive, after being planted and standing in the rooting room, 13 to 20 weeks of cooling. At the beginning of the cooling period, the temperature is set at 9°C but is gradually reduced to 0°C (non-cooled bulbs). For pot tulips, the cooling period is 2 weeks shorter, the cooling treatment being given after the bulbs have been planted in boxes or pots placed in the rooting room at the consumer premises. Part of the cooling treatment can be applied to the dry bulbs (nine-degree pre-cooled tulips) before planting them in boxes for completion of the cooling treatment.

Once the cooling treatment has been completed, the boxes or pots are taken from the rooting room and placed in the greenhouse. At a greenhouse temperature of 18 to 20°C, the flowers are marketed in 3 to 4 weeks (the warmer, the earlier). Depending on the greenhouse temperature and the cultivar, flowers can be produced from December to April

## Forcing in the greenhouse border soil



### Five-degree tulips

Depending on the required flowering period and the cultivar, these bulbs receive a 5°C to 2°C cold treatment for 9 to 14 weeks. The bulbs are then planted in the greenhouse soil where, depending on the greenhouse temperature, flowers will be harvested in 50 to 60 days (the warmer, the earlier). The cold treatment is given in the Netherlands before the bulbs are shipped. If the duration of transport is long, however, part of this cold treatment can be done during shipping. These five-degree tulips are usually brought into flower from late November to early March.

### Nine-degree (pre-cooled) and non-cooled tulips

Depending on the required flowering period and cultivar, non-cooled bulbs can receive their cold treatment by exposing them to ambient temperature in the greenhouse soil for 13 to 20 weeks. If part of the cooling treatment (no longer than 9 weeks) is applied to the dry bulb (i.e. not planted), this is done in a cold store set at 9°C or possibly 5°C (the 9° setting being used for pre-cooled tulips). Nine-degree tulips can be brought into flower from early December to early April.

## Forcing in water



### Nine-degree tulips

Depending on the required flowering period and cultivar, bulbs receive 13 to 20 weeks of cooling. At the beginning of the cooling period, the temperature is set at 9°C but is gradually reduced to 0°C. During this last part of the cooling period (the rooting period), tulips are kept at a temperature of 5°C. Once the cooling period is completed, the boxes are taken from the rooting room and placed in the greenhouse. At a greenhouse temperature of 16 to 18°C, the flowers are harvested in 3 to 4 weeks (the warmer, the earlier). Depending on the greenhouse temperature and cultivar, flowers are produced from December to April.

## Ice tulips

These bulbs are planted in boxes in November and then allowed to root at 9°C or 5°C for 3 to 6 weeks. After this rooting period, the boxes are frozen, wrapped in plastic and stored at -1.5 to -2°C. Usually, the boxes are taken into the greenhouse or put in a cool place outside after the summer months at which time the tulips are allowed to come into flower. This method is used to force a limited range of tulips during the autumn months. Unfortunately, the attractiveness and keeping quality of these tulips is sometimes less than ideal. This is the reason, therefore, that this production technique is not discussed here in detail.

Nevertheless, with certain cultivars and the proper treatment, there are good commercial opportunities for its application. Depending on the climate and cultivar, flowers can be produced from May to late November with the exception of warm summer months.