As previously described, the rose is a plant which grows best in an environment with lots of sunlight, mild temperatures, minimal variation between day and night temperatures and has moderate values of relative humidity. This means that commercial cultivation should be carried out in protected environments, even although the plant is genetically improved.

**The optimum daytime temperatures are between 25-27°C, optimum night temperatures are between 16-18°C and the optimum relative humidity around 60-70%**. All climatic aspect are essential i.e. humidity, available light, type of greenhouse and productive environment.

In some of the main producing countries such as Ecuador and Colombia, the climatic conditions result in Tea Hybrid roses that are the biggest in the world. This is because of the cool and constant climate and good light quality all year round (i.e. in Colombia, the production is situated on a plateau at an altitude between 2500-3000 m). These countries are close to the equatorial zone and have no extreme temperatures meanwhile good light is always available.

The low temperatures (at altitudes of >2000-2200 m above sea level) lengthens the period from harvest to new blossoming, from 60-70 days (2200-2400 m above the sea level) to 80-100 (2800-3000 m). It results in the production of roses with stems of up to 150 cm in length (red varieties).

The floral bud, at harvesting stage can be over 6-7 cm in diameter. This also depends on the rose variety, type of greenhouse and technical competence of the grower.

### 6.1 CLIMATE AND TEMPERATURE

Like most flowering crops, roses need heating if grown in cold regions, to avoid the plants from going into dormancy (rest). When the temperatures are below 12-14°C while the relative humidity (R.H.) is high the plants suffer.

Naturally, lower temperatures progressively delay the blossoming and harvest time. On the other hand, high temperatures (>26-28°C), results in a gradual reduction of quality. We refer to smaller flowers, shorter, thinner stems and a general reduction of vegetative mass (photo 4). Additionally pests and diseases easily spread.

Strong variations in temperatures between day and night causes stress to the plant and create dew that promotes the spread of Downy mildew as well as Blackening of the petal edges in red varieties (photo 1 chapter 11 and photo 15).

Generally, roses resist low temperatures quite well, especially in conditions of low humidity. Temperatures below 0°C are however problematic for some varieties of Rootstock (e.g. Rosa Indica).

When the temperature remains below 0°C for longer periods of time, heating and or covering is required to increase the temperature to make it more suitable for the plant (photo 3).