

## Proper Management of Substrates

April 2018 Edition

### **Preliminary Remarks**

*RAL Quality Assurance stipulates precise quality specifications for horticultural growing media, compliance with which is subject to neutral and independent monitoring by the Quality Assurance Association Growing Media for Plants [German GGS]. With RAL Quality Assurance the growing media producer is subject to a strict neutral and independent system of assuring high quality in his products.*

*This quality should also be guaranteed however following delivery of growing media to the user. A definitive factor in this regard may be, for example, storage or use of the growing media.*

*This present bulletin describes the principles which must be observed here. Included here is the state of knowledge as of April 2018; GGS reserves the right of review.*

### **1 Storage of growing media in all delivered forms**

#### **1.1 Storage conditions / storage duration**

In storage it must be ensured that the temperature in the growing medium does not rise to greatly. Otherwise increased fungal and bacterial growth may occur as with increasing temperature the living conditions for microorganisms improve. It is helpful if the substrates are not subject to direct solar radiation. Basically growing media should be used as soon as possible.

At excessively high growing media temperatures fluctuations in pH value or nutrient loss (immobilisation) may occur. In growing media exposed to direct solar radiation random excessive temperature differential may occur in part, which can lead to additional problems.

Growing media, whose temperature has been increased when stored for a lengthy period of time should be subject to a full growth media analysis and a germination test in any event. A decision regarding use of the growing medium should only be taken following consultation with the producer.

#### **1.2 Volume effect**

Basically the volume indicated at the point of production (EN 12580) applies. During storage of growing media compression and irreversible loss of volume occurs due to pressure.

#### **1.3 Particular features in the case of loose substrates**

Packed growing media are protected from many (but not all) environmental influences. If growing media are procured in loose form and stored it must be ensured that the original properties are retained.

Storage conditions must be impeccable from a horticultural sanitation point of view. Contamination with foreign matter or weed seeds must be eliminated by appropriate means. The growth media storage facility must be particularly protected from the effects of weather (e.g. wind, precipitation, direct solar radiation and hence drying out) and contamination.

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Prior to every topping up the growing media storage facility must be completely empty, i.e. free from "old" growing media ("first in – first out") or foreign matter of any kind.

Clear and comprehensive labelling of the growth media store must be ensured so that no mix-ups or misunderstandings regarding growing media use can come about.

### 1.4 Particular features in the case of substrates with mineral or organic slow-release fertilisers

Substrates containing mineral or organic slow-release fertilisers (e.g. coated fertilisers and bonemeals) should not in principle be stored. In this case storage may have particularly grave consequences for usability.

Slow-release fertiliser releases nutrients to the growing medium over a defined period of time depending on the fertiliser type whereby the salt content in the growing medium automatically rises. If the stored growing medium is subsequently used plant damage may occur.

If cultural growth media are nonetheless stored, disregarding the recommendations made a full growth medium analysis must be performed. If the fertilizer is of the coated slow-release type, this must be removed prior to analysis (otherwise the analysis is meaningless).

Before using therefore it is essential to consult with the growing medium producer.

## 2 Use of growing media

### 2.1 Subsequent growth media change

Subsequent admixture of additional substances by the user is most strongly advised against. The growing media properties may change in an incalculable form if this is done.

### 2.2 Watering

If the growing medium is used by the customer adequate watering appropriate to growth must be ensured.

Excessive drying out complicates rewetting. Excessive watering leads to the growth medium becoming muddy.

### 2.3 Admixture of fertiliser

Depending on admixture of fertiliser and nutrient requirement of plant growth growing media need a correct fertilising regime during growth. If too little fertiliser is added irreparable nutrient deficiency may occur. At excessively high concentrations of fertiliser due to over-fertilising plant damage may similarly occur.

In order to guarantee optimum nutrient supply it is necessary to test the growing medium at regular intervals during growth and to carry out growing medium analyses.

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