



Growing media for the future

H.T.M. Boon and J.B.G.M. Verhagen

Foundation RHP, Galgengeweg 38, 2691 MG 's-Gravenzande, The Netherlands

Summary

The composition of growing media will change the next few years. In several countries consumers ask questions about the use of peat as raw material for growing media. They aim for the value of natural environment of peat areas, and to a lesser degree to the CO₂ impact of the growing medium on the environmental conditions. This market question may lead to a change in the use of peat in potting soils in the future. Another source of change is formed by governments. The policies of a number of governments concentrate on preservation activities. Within this scope the government stimulates the use of organic waste flows, among which is the application of (green) compost in potting soils.

What is practicable?

As reaction on the above mentioned development a number of Dutch organisations in the horticultural industry decided to start the project 'New Growing Media'. Growers, exporters, substrate producers, PPO and RHP joined forces to determine – under practical circumstances – the possibilities of mixing growing media without peat or low in peat content.

Within the framework of the project 15 growers with a total of 16 crops) started small-scale trials (phase A). Per crop 3 alternative growing media were developed based on the requirements of the species. The starting points to create the alternative mixtures were:

- Development in consultation with the grower to use practical experience
- The alternatives were to produce similar cultural results as the substrate used originally.
- The raw materials used as alternatives and in addition to peat, had to be functional, economical and available in large enough volumes. It concerned coir-products, green-compost, bark, perlite, wood fibre and clay.

The results of phase A regarding cultural aspects, cropping time and product quality were input for improvements in phase B. During phase B of the project, the most promising alternative mixture per crop was tested on a larger scale (up to 25.000 plants).

Table 1. Overall results of the most promising alternative mixture per plant type.

Pot gerbera	± / -
Spathiphyllum	±
Hedera	+
Castana	+
Crassula	o / ±
Potrose	o / ±
Saintpaulia	±
Begonia	±
Adiantum	-
Poinsettia	o / -

The conclusions of the project were the following. Growers must be aware of the changed characteristics of a growing medium. Only highly qualified constituents can be used as alternatives in addition to peat. Peat is an important “carrier” in most media providing a clean base.

Environmental impact

The use of alternative raw materials in addition to peat, should lead to improvement of the ‘environmental score’. The ‘green’ character of raw materials can be made clearly visible by comparing them on the basis of the influence of the individual product on the environment.

For this purpose RHP has developed and drafted a classification system that concerns the popular raw materials. The classification system expresses the environmental quality of RHP certified products. All relevant environmental aspects, during the life cycle of products, are expressed. The system gives products and (professional) users transparency on the environmental quality of a growing medium or constituent thereof.

The classification has been based on clear and publicly accessible criteria. The underlying criteria are partly quantitative and partly qualitative. The qualitative criteria are based on LCAs (life cycle analyses), which have been drawn up for all important raw materials and additives. The qualitative criteria include aspects which are more difficult to quantify, however they are relevant for the environment, such as environmental care in the various chains of the production (including returning the product to the supplier after use and recycling). The highest environmental class indicates that the environmental impact of the product is considerably better than the market standard. On the other hand the lowest environmental class indicates a product that scores considerably worse than the market standard.

Functionality

It will be possible to judge a substrate on the environmental impact. At the same time though the referred to substrate has to be suitable for the cultivation of the product for

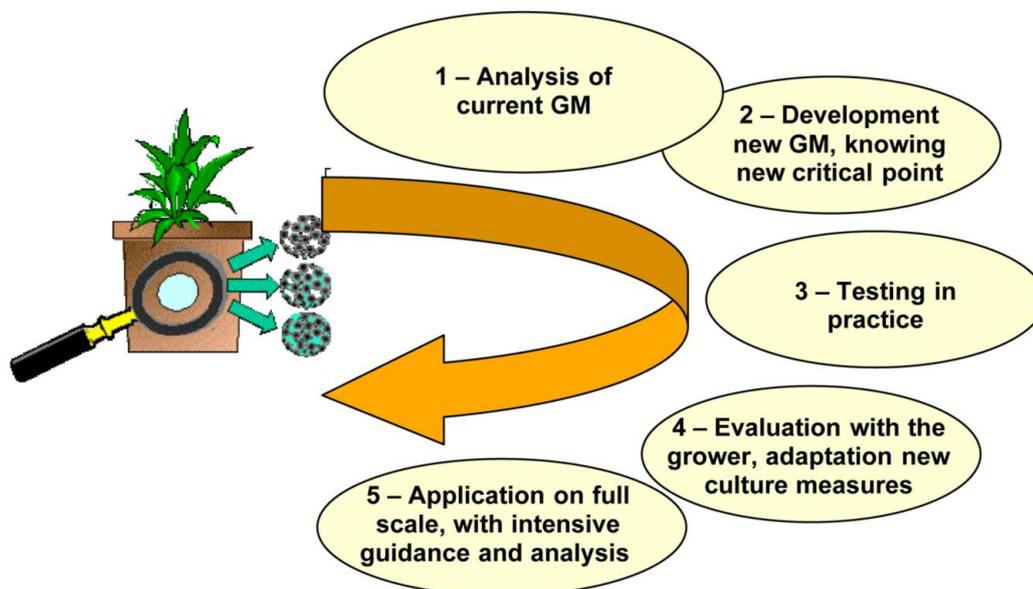


Figure 1. Five-step-evaluation for growers to change growing medium.

which it has been bought for. A good environmental score may however result in an inferior crop result. Extra waste and/or a longer term of cultivation directly lead to a relatively higher environmental impact at which the balance could dip negatively for the ‘greener’ substrate. Therefore RHP considers it necessary that the functionality or the suitability of a substrate can be recorded objectively, so that a good evaluation can be made.

In the project New Growing Media some cultures have provided a bad result. The concerning substrates composed of alternative raw materials, apparently were not optimally suitable for the cultivation of the specific crop. At the moment the growing media producers have insufficient methods and techniques available with which the characteristics of a substrate can be determined objectively. RHP is working on methods which supply practical insight.

Future

RHP is working on methods, which in the future will make it possible to specifically bring in to action alternatives in addition to peat.

Before changes take place, it is of vital importance that growers and substrate suppliers are able to specify the needs of a crop and culture. The specifications should be met by the alternative substrate. There are various constituents that can be used in addition to peat and/or instead of peat. The alternative substrate should function at least as good as the original (peat) substrate. Minor results (increased waste, lower quality) would result in a negative environmental balance.

Growers and suppliers should follow the 5-step evaluation to come to an alternative substrate; well considered and the best fit for the crop.