STARTING ORDERS

EDITION OF SBW INTERNATIONAL BV

IN THIS FLYER

Propagation via tissue culture
Base Package

Propagation via tissue culture

Tissue culture is cultivation of plants or parts of plants on an artificial growing medium in a sterile and conditioned environment. The scientific basis was developed in the 1960's and 1970's. At the end of the 70's the commercial use began to be recognised in the vegetative propagation of plants in well-equipped laboratories. One of these laboratories was SBW International BV that opened its doors in 1976.

The annual production of plants by means of tissue culture is estimated at 500 million world wide. Owing to the volume produced it would be impossible to consider the production of young plants and cultures without this technique. There are many advantages of tissue culture. There is actually very little material needed to start propagation. Because of this the material used for propagation can bestrictly selected. Line selection is therefore quick and easy to implement. The propagation takes place in a pathogen-free environment. This is always a problem with conventional vegetative propagation in glasshouses or open ground.

The production itself is year round and therefore much quicker than conventional methods for vegetative propagation, that are often seasonally restricted. in addition, tissue culture offers the possibility to remove any pathogens from the material ensuring that the young plants produced carry no traces of diseases. This is also a problem with conventional propagation methods and difficult to realize; especially when a number of years are needed to build up a commercial stock from a selected plant or new variety.

Multiplication via auxilary buds

Multiplication via clumbs

Protocorms (Cymbidium)

leaf cutting (Anthurium)

Base Package

Propagation of young plants always begins with selecting the best plants. Only the best material should be selected. After the selection has taken place the material is presented to the laboratory. It is important that the selected material ispresented in an optimal condition. Because each crop is different this needs to take place in consultation with the laboratory. The laboratory provides the plants with a crop and variety code following which the material is used to initiate the tissuecultures. During this phase the strongest plants are selected and these are then tested for the presence of latent bacteria.

Lavendula in vitro

Lavendula in greenhouse

Phlox in vitro

Phlox in greenhouse

The young plants where no bacteria growth is found are then provided with an individual clone number and are then used for further propagation. If necessary a specialised procedure for the propagation of the tissue cultures is developed. When sufficient plants from tissue culture have been produced a test delivery from every clone number is made and delivered to the client. The client is then obliged to establish the plants and bring them into bloom in order to determine the trueness to type. This will ensure that the clones from tissue culture are correct. During initiation of tissue culture there is a likelihood that mutations can occur and if shoot-tips are being used it is probable that these contain latent mutations. Therefore, it is of vital importance that the presence of mutations is excluded before bulk production commences. This is especially important in crops which, during normal growth and propagation, have the tendency to form atypical shoots. The laboratory can commence the bulk production once the client has informed them on the clone numbers that are true to type. Additionally, the laboratory maintains the same clone numbers.

Table 1: Activities per package for initiation

Activities	Base	Select	Assay	*	Ster
Virus assays on mother plants		•	•		•
Initiation of a maximum of 40 tubes using single-node culture	•	•			o
Initiation of a maximum of 40 tubes using meristem-tip culture			•		o
Assay for bacterial contamination of regenerated plants in vitro	•	•	•		•
Propagation to 100 plants on clone number	•	•	•		•
Trial delivery of 50 plants (or more when needed) for true-to-type analysis	•	•	•		•
Germ-plasm conservation of 50 plants for the first half year after trial delivery	•	•	•		•
Virus assays on weaned plants in the greenhouse		•	•		•
Germ-plasm conservation of 40 plants (maximum 10 lines) for one year				•	•
Trial delivery of 50 plants per year from the conserved germ plasm for true-to-type analysis				•	•
Certification of the plants according to the NAKB-Elite, system each year					•
Quarterly progress reports	•	•	•		•
One invoice after starting the work according to offer	•	•	•		•
One invoice per year according to a fixed price set per year				•	•
Invoice of assaycost		•	•		

* = Is included
o = Is included depending on the crop and the circumstances
* = Extension of the Base, Select and Assay Package

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