

## Checklist Practical problems and crop damages

### Introduction

In the checklist mentioned below, items are stated about which information can be collected in case of a (alleged) problem of damage at the use of potting soil or substrates. As every case of damage is a separate situation, there are many varieties conceivable with regard to these cases. That's why on the one hand, the following list is never complete. On the other hand, it's exactly why it will be too extensive for various cases of damage. On the basis of the collected information extra questions could also arise, which are important and cannot immediately be deduced from this checklist. Of course it is important to record the answers to these questions too. Anyway, in principle this checklist is not suitable for weed complaints.

Try not to damage the relation with the user at collecting the information, by, for example, giving the impression that the supplier wants to cover himself with this. Indicate that such details are important for the solution of the problems, in which the grower has an interest too.

Place the information in a file, for example a separate file. Enter in this file the (visit) reports, the collected information concerning the damage and all existing important documents, which are available at the company (see checklist). Determine if you file the copies or the original documents. As the file will regularly be used, it could be wise to work with copies and file the original documents somewhere else in the archives. This can be on the place where the concerning documents always are, or in a separate file where the original documents are kept. This last option is the most sensible because the chance exists that at long-term affairs the original documents might be removed from the original file. Besides it is experienced that at long-term affairs, details will fade in time. Exactly these details can sometimes be important, later in the process. Therefore note all information extensively.

### Checklist

The extensive checklist can be divided in the so-called '**13 commands for damages**'. These 13 commands are stated below.

1. Basis
2. Deliver(y)(ies)
3. Situation of potting soil before use
4. Describe and record the damage
5. Crop details
6. Culture system
7. Watering and fertilising
8. Culture actions
9. Plant protection
10. Culture circumstances
11. Contamination risks at the nursery
12. Single aspects
13. Sampling

The 13 items have been specified below. Collect the details and documents of the mentioned items in case of damage, if they apply.





## **1. Basis**

- 1.1 Describe the damage as the grower this explains
- 1.2 Collect your own visit reports until minimally one year ago
- 1.3 Check which advices you have given as supplier, both before, as well as during the damage and note this if it has not been recorded in the visit reports yet
- 1.4 Collect analysis reports and note what has exactly been sampled and the background of it
- 1.5 Collect the letters, faxes, e-mails, (text) messages, analysis reports and other documents which are sent or handed out by the user, his cultivation adviser etc. If these documents are not bearing the date, then still write down the date. If foreign analyses are handed out, it is very wise, to have the samples examined with the Dutch or European methods all the same.

## **2. Deliver(y)(ies)**

- 2.1 Name of the product delivered
- 2.2 Type of product
- 2.3 Specifications (chemical, physical, etc.); are these specifications communicated to the user?
- 2.4 Are there special customer (related) specifications agreed, if yes which?
- 2.5 Recipe
- 2.6 The way in which the recipe has been established
- 2.7 Has the recipe been communicated with the user, if so, how and when
- 2.8 Delivery date or dates
- 2.9 Way of delivery
- 2.10 Quantity
- 2.11 Production registrations belonging the concerning deliver(y)(ies) including transport control registrations etc.
- 2.12 If there is reason to, the production registrations of the 5 deliveries before and after
- 2.13 If existing (own) analysis details of the concerning delivery
- 2.14 If existing (own) analysis details of the used raw materials
- 2.15 If there is reason to, the analysis details of the 5 deliveries before and after
- 2.16 Secure the counter sample in order to avoid that this will be thrown away after the storage period. Determine only to use the counter sample for examination for a certain test if there is more than sufficient reason to it.
- 2.17 The delivery note(s)

## **3. Situation of the potting soil at the nursery before use**

- 3.1 How has the substrate been stored (outside/inside; type of underground etc.). If being doubtful, consult the driver who has delivered the substrate.
- 3.2 Is an influence of the surroundings to be expected during the storage, if so, what influence
- 3.3 Has the potting soil been removed yet to store somewhere else, if so, how were the conditions.
- 3.4 Has the user himself applied additions yet before or at the start of the use, if so which and how much (also think of water here).
- 3.5 Does the user have various substrate suppliers, if so, is there a chance of mixture or exchange
- 3.6 Is substrate reused, that is possibly exchanged with the concerning deliver(y)(ies), like root balls of wasted plants etc.

#### **4. Description and recording the damage**

- 4.1 Moment of the development of the damage
- 4.2 The stadium in which the plants were at the development of the damage
- 4.3 Description of the first symptoms
- 4.4 The way in which the damage developed it self
- 4.5 Description of the ultimate symptoms
- 4.6 Take care that sufficient photographic material is collected of:
  - a. The symptoms in detail
  - b. The symptoms at which also the whole plant can be seen
  - c. General view in the greenhouse
  - d. If there is reason to, specific situations (eg. storage situation substrate etc.)

#### **5. Crop details**

- 5.1 Plant(s)
- 5.2 Variet(y)(ies)
- 5.3 Type of plant material
- 5.4 Number of consignments/deliveries plant material
- 5.5 Origin plant material
- 5.6 Sowing -, planting out -, planting - or potting date

#### **6. Culture system**

- 6.1 Units in which is cultivated (pots, boxes, trays etc.)
- 6.2 The underground on which is cultivated (concrete floor, anti-root fabric etc.)
- 6.3 The purity of the underground

#### **7. Watering and fertilising**

- 7.1 Way of storage of water an fertilizers; risks for contaminations?
- 7.2 Watering system
- 7.3 The applied watering strategy
- 7.4 For the culture outside: the climate details in time of the development of the damage (among other things precipitation and temperature development with reference to slow release fertilisers)
- 7.5 Fertilising system
- 7.6 The applied fertilising strategy (frequencies and concentrations)
- 7.7 Used fertilisers or recipe fertilising tank
- 7.8 Has been deviated from the fertilising advices, if so how and why
- 7.9 Measuring details of EC and pH of sprinkle water if determined at the nursery
- 7.10 Measuring details of EC and pH of drain water if determined at the nursery
- 7.11 Analysis results of sprinkle water if determined
- 7.12 Analysis results of drain water if determined

#### **8. Culture actions**

- 8.1 Is made use of growth regulators, if so which and how many
- 8.2 Which culture actions are executed and how

## **9. Plant protection**

- 9.1 Used agents
- 9.2 Method of application
- 9.3 Frequency and concentration
- 9.4 Circumstances during application

## **10. Culture circumstances**

- 10.1 The applied climate (temperature, humidity etc.)
- 10.2 Are the plants lighted, if so which type and what is the frequency
- 10.3 Is made use of a CO<sub>2</sub> dosage

## **11. Contamination risks at the nursery**

- 11.1 Is worked cleanly
- 11.2 Purity used machines and tools
- 11.3 Purity and plant safety used materials (bins, trays etc.)
- 11.4 Hygiene in the greenhouse
- 11.5 Remaining possibilities to contaminations

## **12. Single aspects**

- 12.1 Were (recently) made adjustments in connection with the used materials, the method of culture or culture actions eg.:
  - a. New type of pots, bins, gullies, pipes, sheets, sticks, etc.
  - b. Other type of plant material etc.
- 12.2 Which damage restrictive measures have been taken and when
- 12.3 At mother stock cultures pay extra attention to manual culture actions and state of the crop in connection with the stadium just before the development of the damage
- 12.4 Are there more clients who cultivate in a comparable way the same plants in a comparable substrate and how is the situation there

## **13. Sampling**

- 13.1 Determine after considering the details if sampling is possible. Think of:
  - a. unused substrate (if still existing)
  - b. used substrate in which the crop with problems is
  - c. used substrate in which the same crop is growing without problems, preferably of the concerning delivery substrate (if existing)
  - d. sprinkle water
  - e. plants (always have the plants sampled by a person who has experience with it).

*It is advisable not to sample your self, when the contact is not that good anymore with the grower or dealer. In this way a discussion is avoided afterwards. Always sample to a large extent if it is about volume and keep the material that remains by storing it under good circumstances (cool and dark). Apply the existing instructions at sampling. At many damages specific sampling is necessary. Call in an expert authority for this. It often leads earlier to finding the cause.*