





Testing peas for legume fatigue

Problem

Among legume crops, forage peas show the most symptoms of legume fatigue. This is due to infestation with Mycosphaerella-, Phoma-, Fusarium-, Aphanomyces- and other soil-borne pathogens as a result of over-cultivation of peas or other legumes such as lupins, field beans, vetches, red clover, or lucerne. A heavy infestation may lead to a total loss of the peas.

Solution

With the help of a simple method, the soil can be examined for legume-fatigue symptoms prior to cultivation with field peas.

Outcome

The method offers reference points regarding the soil's contamination with these pathogens, and thus indication for a possibly required cultivation break. Refraining from cultivating on contaminated soils helps avoid the situation of a high yield loss due to legume fatigue.

Applicability box

Theme

Nutrient supply, soil quality and soil fertility

Geographical coverage

Generally, and especially in clayey and shallow soils

Application time

3 months prior to cultivating the field with peas

Required time

About 4 hours (baking time not included)

Period of impact

Entire crop rotation

Equipment

Baking oven, aluminium trays, flowerpots, seed

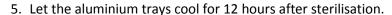
Best in

Crop rotations with a high share of legumes; prior to cultivating peas

Practical recommendation



- 1. Extract 10 litres of humid soil from the field plot you wish to examine and sieve it down to a grain size of 10 mm.
- 2. Moisten dry samples and mix them up evenly.
- 3. Fill four aluminium trays with the humid soil and store the remaining soil.
- 4. Cover the trays filled with soil with tinfoil and place them in the baking oven. Sterilise the samples for at least 12 hours at 70-100 °C in the oven.



- 6. Mark four flowerpots with "R" (for untreated reference) and another four with "H" (for heat-treated soil).
- 7. Fill the four H-flowerpots with the heat-treated soil and fill the four R-flowerpots with the untreated soil.



- 8. Place 5 field-pea seeds in each pot and cover them with 0, 5 cm of soil.
- 9. Place the pots in a tray with some water and keep them in a sheltered place with at least 18 °C and daylight.
- 10. Keep the pots humid during about 6 weeks by pouring water into the trays.