

A top-down view of a petri dish with a dark agar surface. Five small, white, irregularly shaped seed samples are placed on the surface. A yellow rectangular box highlights four of these seeds. The text 'Endophyte seed tests' is written in large yellow font, and 'Seed information' is written in white font below it. A blue banner with the word 'Sow' is on the left side.

# Endophyte seed tests

## Seed information

Sow

ALL Barenbrug ryegrasses containing endophyte are tested prior to sale and have a current test at time of sale. The type of endophyte contained in the seed is stated (e.g. *NEA2*).

Levels are given for the percentage of seed containing endophyte:

- *NEA, NEA2, NEA4, NEA12, AR1* or *AR37*: 70%+ of seed contain stated endophyte
- *LE* or 'Low endophyte': less than 70% of seeds have endophyte

## Endophyte level

A seed either has, or does not have endophyte, and this endophyte level for a line is given as a percentage e.g. a level of 80% means 80% of seeds contain endophyte and 20% do not.

For seed to be sold as containing an endophyte, a level of 70% or more is required. This may be *NEA, NEA2, NEA4, NEA12, AR1, AR37* or another endophyte.

Seed classed as *LE* (*Low endophyte*) contains less than 70% of endophyte.

Endophyte levels in stored seed can drop over time. To maintain high endophyte levels in commercial seed, Barenbrug uses controlled storage (see Storing seed with endophyte), with continual re-testing of endophyte levels.

## Testing seed for endophyte

Two main tests are available.

### 1. Seed test:

This tests the seed directly. It is a quick test for presence of endophyte, but does not indicate whether the endophyte present is dead or alive. It is used on

newly harvested seed, usually up to 4 months old, in which the endophyte is almost certain to be alive.

## 2. Seedling grow out test:

This is used on seed post harvest. Seed is sown and the tiller of the resultant seedling is tested for endophyte at 3-6 weeks of age. This test is more accurate for older seed as only live endophyte will grow into the seedling.

## ELISA testing

The ELISA (Enzyme Linked Immuno Sorbant Assay) test is a specific test for *AR1* or *AR37*, to ensure they are not contaminated by *Standard* endophyte.

The ELISA test determines the presence of lolitrem B in a seedline. Seed with *Standard* endophyte always contains lolitrem B. Seed with *AR1* or *AR37* doesn't contain any lolitrem B.

The result of the ELISA test is reported as a grade that runs from 1 to 6.

Grades 1-5 are all acceptable for 1st Generation seed, and mean less than 5% contamination. Grade 6 is not suitable for sale.