

# Testing Lucerne seed for Dodder

FACT SHEET | JULY 2014

## WHAT IS DODDER AND WHY IS IT A PROBLEM?

Golden dodder (*Cuscuta campestris*) is a serious pest for lucerne seed production. It is a parasitic plant, which reduces crop yield and can kill its host plant. Seed contamination with golden dodder can jeopardise domestic and export markets. Reduced yield and increased cost of cleaning may make seed production uneconomic.

Under the Natural Resources Management Act, 2004, golden dodder is a category 1 declared plant and landholders are required to destroy it on their properties. Golden dodder plants can produce up to 16,000 seeds per plant and seed can be dormant for more than 50 years, creating a long-term pest plant issue. It is therefore essential to prevent golden dodder from growing and seeding in valuable crops - early detection is the key to achieving this.



## WHY TEST FOR DODDER?

The PCR test is an important advance in the early detection of golden dodder which improves the chance of plant eradication from the paddock. Lucerne seed contaminated with golden dodder cannot be moved or sold.

Since 2013, seed marketers and seed cleaners in south-east SA require PCR testing for all lucerne seed

deliveries. This test provides important information to growers about their crops and also protects seed cleaners from potential contamination risk. The test can also be used by other industry stakeholders, such as harvest contractors, to protect their machinery from contamination.

Regular testing will help detect any new infestations before they build up large seed banks and help monitor the effectiveness of eradication programs.

## WHAT IS PCR TESTING?

In 2012, the South Australian Research and Development Institute (SARDI), in conjunction with Lucerne Australia, developed a test to detect the presence of golden dodder in lucerne seed.

The 'quantitative polymerase chain reaction' (PCR) test works by amplifying a small fragment of DNA specific to a target organism (in this case golden dodder). This PCR test can detect small amounts of DNA from golden dodder in large lots of lucerne seed, even if golden dodder seed is not found.



SARDI laboratory showing the PCR instruments and the sampling robots.



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## HOW TO TEST?

You can test for golden dodder by collecting seed on farm or from cleaning sheds, gathering dust samples from machinery or storage areas and also lucerne seed offal.

Samples between 30-50 grams are sent to SARDI in Adelaide in suitable, sealed packaging with traceable labelling. These can be requested from any local cleaning shed or Lucerne Australia directly.

The cost of sampling is approximately \$130 per sample.

Testing can complement in-field inspections to assist early detection.



PCR instruments showing detection of golden dodder in the SARDI laboratory Adelaide

## WHAT DO PCR TEST RESULTS MEAN?

PCR results are reported as the amount (picogram) of golden dodder DNA per gram sample. PCR test results will be presented as a single number and range from 0 to many thousand.

- A PCR test result of 0 is considered a negative test result – no golden dodder was detected in the sample.
- Any PCR test result greater than 0 is considered a positive test result – golden dodder was detected in the sample.

A DNA result of between 30-100 pg is roughly equivalent to one golden dodder seed per 100g of the unprocessed sample.

All positive tests, even those with very low results, can contain golden dodder seed. Therefore all positive PCR test results should be further investigated to determine if golden dodder is present in the paddock or if contamination has occurred.

## FOR MORE INFORMATION

Contact SARDI on 08 83039400

Contact Natural Resources South East on 08 87351177

Visit Lucerne Australia at [www.lucerneaustralia.org.au](http://www.lucerneaustralia.org.au)

This factsheet has been developed by Natural Resources South East and:

