UPOV
International Union for the Protection of New Varieties of Plants

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Technical Working Party for Agricultural Crops

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Hanover, Germany, June 19 to 23, 2017

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ADDENDUM TO IMPACT OF ENDOPHYTES ON DUS CHARACTERISTICS IN GRASSES

Document prepared by the Office of the Union

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The Annex to this document contains a copy of a presentation on "New Zealand's Experience of Fungal Endophyte in Grass DUS Testing", prepared by an expert from New Zealand, to be made at the forty-sixth session of the Technical Working Party for Agricultural Crops (TWA).

[Annex follows]

ANNEX

NEW ZEALAND'S EXPERIENCE OF FUNGAL ENDOPHYTE IN GRASS DUS TESTING

Presentation prepared by an expert from New Zealand

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New Zealand's Experience of Fungal Endophyte in Grass DUS Testing

TWA/46, Hanover, Germany

June 2017

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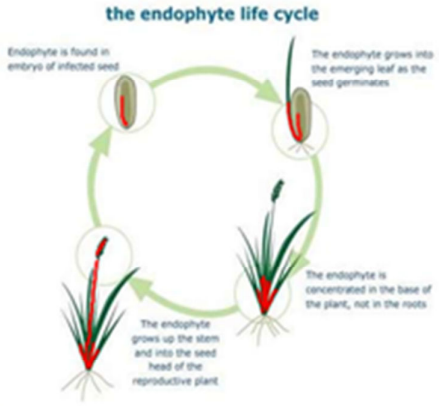
Fungal Endophyte

- Fungal endophytes are fungi that live in the tissues of a range of plants including grasses
- Fungal endophytes and grasses have a symbiotic relationship. Endophytes can provide benefits such as drought tolerance and chemical defence against grazing animals and insects
- Endophytes produce a range of alkaloids some of which cause problems to animals and others which are beneficial for insect control



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Endophytes in New Zealand Agriculture

- In 1982 a strain of *Epichloë festucae* was identified which did not produce alkaloids which were harmful to grazing animals but did have many of the alkaloids for insect control

- Since then a number of varieties of *Epichloë* have been developed and commercialised
- Much of the ryegrass sold in New Zealand is now produced with a matched endophyte

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Endophyte Free Seed For DUS Grass Testing

- Since 2011 New Zealand has required grass seed submitted for testing to be endophyte free
- Rationale: To eliminate potential sources of morphological variation between varieties
- But: -

  Requires heat treatment of seed, decreasing seed longevity

  Older varieties may still have "wild" endophyte present in seed which the variety maintainer is unaware of

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Risks and Benefits of Allowing Endophyte Free Seed

Benefits

- Avoid extra work for applicants in providing an endophyte free sample
- Avoid reduced seed viability of the official seed sample over time
- Potentially fewer treatments for pest control required during growing trials

Risks

- Despite evidence and experience so far, there may be endophyte varieties that influence DUS characteristics
- New characteristics added to DUS testing in the future may be influenced by endophytes
- New Zealand breeders have raised concern regarding the acceptance of NZ test reports

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New Policy: Seed Requirements for Grass Varieties

Now acceptable to supply seed with viable endophyte present.

It remains a requirement to supply information on: -

- Presence of viable endophyte
- Variety of endophyte (if known)
- If present, the approximate level of infected seed

Website link: https://www.iponz.govt.nz/about-ip/pvr/technical-guidance/current/seed-requirement-for-grass-varieties/

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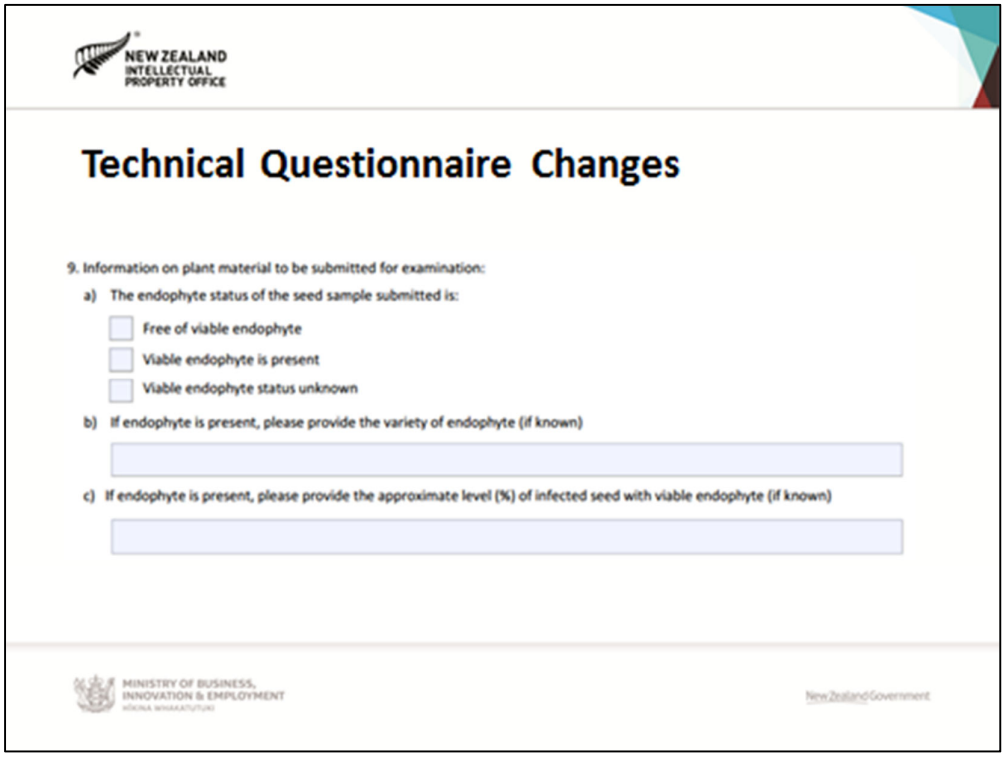

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