Technical Data Sheet

Endophyte in grasses

An Endophyte is a fungus which lives within the tissues of a grass plant, obtaining its nutrition from the plant in return. The major benefit the grass plant receives is insect resistance from chemicals the fungus produces. These endophytic fungi are only found in a limited number of turf grass varieties, within the fescue and perennial ryegrass species.

The plant becomes infected with the fungus only if its parent plant was infected. The seed produced by an endophtye infected plant will result in an infected plant which produces infected seed. The fungus cannot be spread from plant to plant in an existing lawn.

With high levels of endophytes, grasses will show resistance to Argentine Stem Weevil, Sod Webworms, armyworms ,billbugs, nematodes. This resistance occurs through the production of chemicals, called alkaloids, by the fungus, which are harmless to the plant, but toxic to the insects.

An endophyte enhanced turf also tolerates stress, such as heat or drought , much better than a common turf. Key factors in surviving periods of stress are reducing water loss through the plant and maintaining water uptake into the plant. As most insects damage directly affects these plant functions, a turf with less insect damage will better tolerate drought and stress. Endophytes have also been shown to directly affect the water relations, increase root growth and increase competitiveness even without insect effects.

Percent Infection

Level 1.	**85-100%**	**High**
Level 2.	**70-84%**	**Medium**
Level 3.	**0-69%**	**Low**

Levels of Endophyte vary among varieties of the same species of grass plants, and are not considered significant unless greater than 70%. More than 70% of seeds contain the endophyte fungus.

Over a period of time the endophyte infection level in a turf will actually increase, as the weaker plants without endophyte will be out competed by the stronger endophytic plants. Thus a turf can improve as it ages.

There are now many varieties of ryegrasses and fescues which contain some level of endophyte. Bentgrasses have yet to show endophyte enhancement, and Kentucky bluegrass has done so only minimally. Both species could potentially be developed to offer high levels of the fungus.

Forage grasses high in endophyte have been shown to cause illness in some grazing animals, so endophyte grasses should not be used where they will be grazed on.

The viability, or effectiveness, of the endophyte fungus will decrease over time. Seed should be stored in a cool, dry location, and one should purchase fresh seed to minimise this decrease. Buying seed less than a year and half old is advisable

3-9 Carawa Drive,
Reservoir.Vic.3073.
Ph. 03 9462 0340
Fax 03 9462 0275
www.adseed.com.au