AVANEX®
UNIQUE ENDOPHYTE TECHNOLOGY

BREAKTHROUGH TECHNOLOGY
BIRD DETERRENT GRASSES
What is Avanex?
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- **Avanex®** unique endophytic grass produces high levels of alkaloids (Ergovaline and Loline) that reduce insect numbers.
- Lower insect numbers are less attractive to birds feeding resulting in fewer ground feeding birds.
- With fewer ground feeding birds, the number of Raptors also decrease significantly.
Alkaloids

• **Alkaloids** are a group of naturally occurring chemical compounds that contain mostly basic nitrogen atoms.

• **Ergovaline** and **Loline** are alkaloids found in endophyte infected grasses.
What is an Endophyte?

• An **Endophyte** is a fungus that lives within a plant. In the case of grasses, the fungus provides drought, heat and disease resistance.

• The **Unique Endophyte** in the Avanex grasses also provide a deterrence to insects as well as mammalian and avian herbivores.
Endophyte transmits from plant to plant only via the seed.

Endophyte hyphae live beneath the seed coat.
Live Endophyte

• Endophytes are living organisms
• Storage of “old” crop seed over a period of time causes loss of live endophyte
• Endophyte loss is common in most fescue plantings
Avanex Varieties

- **Jackal** is a semi upright turf tall fescue
- Medium green, medium density
- **Colosseum** is a compact type turf ryegrass
- Medium green, medium density
- Best maintained 4-6”
Why endophyte at airports?

**Reduced food sources, insecticide usage and ground water contamination**

**Better drought tolerance**
**And better persistence**

**Reduce bird strike**
Herbivorous Bird Deterrence

• Ducks and geese are deterred from feeding on Avanex® unique endophytic grass.
• They are able to detect its presence and learn not to feed on it.

Deterrence is associated with high levels of the alkaloid ergovaline, produced by both Colosseum AR95 and Jackal AR601.
Feeding Trials

• Geese were given the choice to feed on two different plots of grass.
• One was Avanex and the other was a palatable forage grass.
• Both plots had a fenced off area for experiment control.
Feeding Trials

Nil Endophyte  
Grazed to the crown

Plus Endophyte  
Most Damage is from Walking on the grass
Current Trials in the USA

• Widow’s Creek TVA site with Canadian Geese issues along cooling pond.
• Golf Course in Pacific Northwest with Canadian Geese issues.
• JFK Airport in New York.
• Newark Airport in New Jersey.