

Keep Grain Marketable with Dividend Extreme®

Dwarf bunt, also known as *Tilletia controversa* Kuhn (TCK), is a fungal disease that infects winter wheat mainly in the Pacific Northwest and has a direct impact on the marketability of the crop. Once off-limits as an export market for PNW growers, China now enforces an allowance of no more than 30,000 TCK spores per 50-gram sample. Advancements in seed treatment fungicides make this an achievable standard. One of the highest averages of TCK-infected wheat ever recorded was in 2002 when just 506 spores per 50-gram sample were reported. Because of Dividend Extreme® seed treatment fungicide, the only option available for dwarf bunt control, the Chinese tolerance level can be easily managed, and PNW growers can feel confident about this lucrative export market.

Environmental Factors

Environmental conditions favorable to TCK are very specific. Because of the need for cool weather and snow cover during germination, spring cereals are not affected. In order for the disease to develop in winter cereal crops, certain conditions must be met:

- 60 to 90 days of continuous snow cover
- Sustained soil temperature of 37°– 46° F
- Snow cover thick enough to insulate the soil surface against wide changes in temperature

Snow cover also provides the temperature range and moisture needed for sporulation, germination and infection.

TCK-prone areas in the Pacific Northwest are loosely defined as extending from the eastern Palouse region to the Camas Prairie and north of Highway 2 in Washington.



Symptoms

Grain infected with TCK is still marketable, but it should be kept separate from grain possibly bound for China. If fields are in areas prone to infection, recognizing symptoms can help growers channel grain appropriately.

- The “dwarfing” system in the fungus can reduce plant height as much as 66 percent, so infected plants may be hard to find under a canopy of taller, healthy plants.
- Infected plants typically have more tillers.
- Infected heads are somewhat rounder in shape than normal heads.
- Heads with darker colored kernels indicate the presence of smut balls, which give off a fishy odor when crushed.

Damage

When TCK manages to take hold, damage is impossible to ignore. TCK causes wheat plants to be dwarfed and destroys kernels, which translates to lower yields. An infected wheat head with 25 to 30 kernels can produce 100 to 240 million spores. Because black spores in an infected wheat head are numerous, spores that are ruptured can create a black cloud during harvest and at grain elevators. In addition to load rejection or docked prices at the grain elevator, dwarf bunt spores are also highly flammable, causing great concern when grain is delivered. Rejected loads are essentially useless because animals usually refuse to eat contaminated grain due to the strong, fishlike odor.

Management

Managing for TCK has become much easier in recent years with the increased use of seed treatment fungicides. Growers are able to return a higher profit on their grain without worry of deductions for an infected load.

“Before growers began using seed treatments against dwarf bunt, we would see losses of up to 40 bushels per acre. Loads came in that looked like charcoal, and growers couldn’t get rid of them,” says McGregor Company’s Keith Hall in Nezperce, Idaho. “Dwarf bunt hasn’t been a problem for many years even though we’ve had several winters with favorable conditions for outbreaks. Dividend Extreme has helped reduce the level of infection and put money in farmers’ pockets.” Six trials between 1993 and 1997 in Idaho, Montana and Oregon showed Dividend Extreme averaging a yield increase of 21 percent over the untreated check.

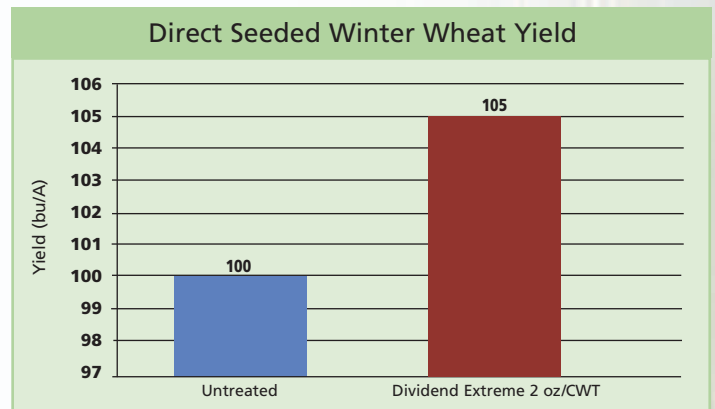
Follow the guidelines below to minimize the impact of TCK.

- Plant varieties that are at least moderately resistant to dwarf bunt, especially when planting in an area likely to be affected.
- Apply a seed treatment before planting, especially to seed saved from previous years.

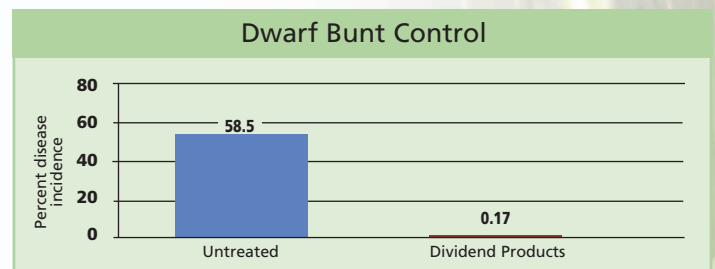
Dividend Extreme seed treatment fungicide is the only seed treatment available for control of dwarf bunt.

- Scout fields prior to harvest.

If infection is suspected, confirm it with extension or university researchers. Work closely with elevator operators and grain handlers to keep infected grain separate from that possibly bound for China.



Spillman Agronomy Farms. Wash. State Univ., 2002 trials. Variety: Madsen. Fifth consecutive year of direct seeding.



Average of 16 trials in ID, MT, OR, UT and WA. 1988-1997.

Benefits of Dividend Extreme:

- Protects against 16 early season seed- and soil-borne diseases, including unsurpassed control of dwarf bunt.
- Offers greatest protection combined with excellent seed safety for optimal seedling development and root growth.
- Contains Apron XL[®] for unsurpassed control of *Pythium* damping off.
- Good return on investment vs. untreated and competitors.
- Fully compatible with Cruiser[®] seed treatment insecticide to protect wheat seedlings from diseases and insects at the same time.

For more information, visit the Syngenta Crop Protection Web site at www.syngentacropprotection.com or call 866-SYNGENTA (866-796-4368).

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