



Aspergillus fungus spores from yard waste compost facilities

Waste/Solid Waste fact sheet w-sw1-01, July 2005

Municipal
Division

Solid Waste
Section

Land Policy
Unit

Occasionally, people are concerned that living near a yard waste compost facility will expose them to high levels of fungal spores. The spores of particular concern are of the fungus *Aspergillus fumigatus*, which on rare occasions may cause fungal infections.

A. fumigatus spores are very common in our environment. In general, everyday activities, such as mowing grass, mulching the garden, walking on a wood chip-covered trail, or cleaning the attic, expose people to more *A. fumigatus* spores than living near a compost facility. (See Table 1 below for *A. fumigatus* spore counts for some representative sites.)

In healthy individuals, exposure to *A. fumigatus* spores is not a health concern; it does not cause diseases or asthma in most people. However, people who suffer from a serious disease, are asthmatic, or immunosuppressed may be at risk from exposure to elevated levels of spores. For that reason, these

individuals should not work at a compost facility.

According to scientific studies and literature reviews, a properly operated compost facility should not present a health risk to people who live or work nearby. To be a good neighbor and to minimize risks, the Minnesota Pollution Control Agency (MPCA) recommends that all compost facilities spray water on the compost on dry or windy days and refrain from turning the piles on windy days. This minimizes not only *A. fumigatus* spores, but also litter and fugitive odors that may escape the site. A buffer zone between the facility and a residential area is also recommended for the same reasons.

In a study by Millner et al. (1980), the number of spores next to compost piles was very low — 0-14/cubic meter (m³). When the compost was turned, the spore counts went up (1,390/m³) but returned to low levels (39/m³) within 15 minutes after mechanical turning had stopped. (See Table 2 on the next page.)

Table 1 Number of *Aspergillus fumigatus* spores at various sites

(Source: Millner et al., 1994.)

Site	Spore Count (colony-forming units, CFU/m ³)	
	Spring	Summer
Lawn with mulch	6	686
Arboretum	6	136
Agriculture (barn)	352	5,550
Home attic	1,160	125
Greenhouse	1,070	9,810



Table 2 Effect of mechanical turning on compost pile *Aspergillus fumigatus* spore count

(Source: Millner et al., 1980)

Location and treatment	Spore Count (colony-forming units, CFU/m ³)
Next to compost piles before mechanical turning	39
Next to compost piles immediately after mechanical turning	1,390
Next to compost piles 15 minutes after mechanical turning.	39

For more information

For more information about yard waste composting facilities, contact Roberta Wirth at the MPCA (phone 651-296-7384, e-mail roberta.wirth@pca.state.mn.us).

Literature cited

Millner, P. D.; D. A. Bassett; and P. B. Marsh. 1980. Dispersal of *Asperigillus fumigatus* from sewage sludge compost piles subjected to mechanical agitation in open air. *Applied and Environmental Microbiology* 39:1000-1009.

Millner, P. D.; S. A. Olenchock; E. Epstein; R. Rylander; J. Haines, J. Walker, B. L. Ooi; E. Horne; and M. Maritato. 1994. Bioaerosols associated with composting facilities. *Compost Science and Utilization* 2(4):6-57.