

# Powdery mildew on wheat

*Blumeria graminis* f.sp. *tritici* Powdery mildew, 小麦白粉病 in Chinese



Powdery mildew occurs on leaves and stems (Photo: Zhengzhou Zheng Shi Chemical Co.,Ltd.)



Early infestation spots (1-2mm) are white. (Photo: Hei Longjiang Agricultural Economics Academy) Late infestation spots become light brown (Photo: China Agricultural University)



Late infestation spots become light brown (Photo: China Agricultural University)

Prevention	Monitoring	Direct Control	Direct Control	Restrictions
<ul style="list-style-type: none"> <li>Use resistant varieties, such as Zhengmai 366, Zhoumai 18, Zhengyumi 9987, and others.</li> <li>Alternate cultivation with non-grassy crops.</li> <li>In case of infection, clean up crop residue to prevent overwintering of mildew. In case no major pests or diseases, leave residues in the field to improve soils.</li> <li>Plant non-dense, for example 225 plants/m<sup>2</sup> because dense vegetation may be conducive for spread of disease</li> </ul>	<ul style="list-style-type: none"> <li>Powdery mildew is a fungus that occurs on leaves, stems, even heads.</li> <li>Monitor from late February from wheat heading period until pustulation period.</li> <li>Choose 10 random points in the field. At every point investigate 3 to 5 plants. Monitor once a week</li> <li>At early infestation, tiny white spots (1-2mm) are scattered across the leaves. The small spots will get larger and denser. The spots are on the upper side of the leaves. The mildew may spread up and down the length of the plant.</li> <li>Consider action when early first white spots occur on 5-15% of all plants.</li> <li>Later, the spots become light brown, with some tiny black soluble dots on the spots. Action is too late.</li> <li>Be careful, many tiny orange dots and spots are not mildew, they are rust fungi.</li> </ul>	<ul style="list-style-type: none"> <li>Spray <i>Bacillus subtilis</i> (枯草芽孢杆菌) Make sure to choose a product with the right strain, such as strain E1R-j. Spray suspension on the leaves uniformly in the early period of powdery mildew. A mu needs 300 to 600g <i>Bacillus subtilis</i>. Dilute 1 billion CFU <i>Bacillus subtilis</i> dilute 1000-1500 times. But check product labels as each product may differ.</li> <li>Remove the infected leaves or plants, if few.</li> </ul>	<ul style="list-style-type: none"> <li>When using a chemical or botanical pesticide, always wear protective clothing and follow the instructions on the product label.</li> <li>WHO toxicity class II pesticides may not be allowed in certain IPM or "green" production schemes.</li> <li>Always consult recent list of registered pesticides of ICAMA/China, and of China pesticide information network. See <a href="http://www.chinapesticide.gov.cn/">http://www.chinapesticide.gov.cn/</a></li> <li>Fenpropimorph- products (for example: enpropimorph 丁苯吗啉). Chemical group: Sterol biosynthesis membranes Morpholines; systemic action. Usually applied at 750g/1000l dilution per ha, but double-check product labels. Spray in the early stage of disease.</li> <li>Triadimefon- products (for example 粉锈宁 15% triadimefon wettable powder). Systemic action. Usually applied at 8.75g-15g (35-60g miscible oil) /75-100L water , but double-check product labels. Spray in the early stage of disease when first early symptoms are seen.</li> </ul>	<ul style="list-style-type: none"> <li>WHO toxicity class III- slightly acute hazardous. Not toxic to bees or water. Max:2 sprays a year. Having sprayed, the effect will continue 3-4 weeks. Pre-harvest interval (PHI) 2 weeks; restricted re-entry interval (REI) 1 day</li> <li>WHO toxicity class II moderately acute hazardous. Not toxic to bees. Max:2 sprays a season. PHI 2 weeks. REI 14 days.</li> </ul>



## China

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