

Supplementary Table S1. Non-*Tilletia* wheat or grass pathogens and wheat (host plant) against which the qPCR assays were tested.

Species	Voucher ^a	Disease associated	ITS GenBank Acc. No.	Reference
<i>Alternaria alternata</i>	DAOMC 234879	Black point / smudge	OL636518	this study
<i>Aspergillus foetidus</i>	KAS3540	Grain-storage molds	OL636513	this study
<i>Bipolaris sorokiniana</i>	DAOMC 226217	Spot blotch	OL636509	this study
<i>Blumeria graminis</i>	DAOM 38670	Powdery mildew	OL712411	this study
<i>Cladosporium allicinum</i>	KAS4624	Black (sooty) head mold	OL636514	this study
<i>Cladosporium herbarum</i>	JB2212	Black (sooty) head mold	OL636517	this study
<i>Didymella glomerata</i>	JB2038	Leaf spot / leaf blight	OL636515	this study
<i>Didymella glomerata</i>	JB2113	Leaf spot / leaf blight	OL636516	this study
<i>Fusarium graminearum</i>	SH1008	Fusarium head blight (Scab)	OL636519	this study
<i>Parastagonospora nodorum</i>	DAOMC 226222	Glume blotch	OL636510	this study
<i>Penicillium verrucosum</i>	KAS6850	Grain-storage molds	OL636512	this study
<i>Puccinia graminis</i>	RS1924	Stem rust	OL712413	this study
<i>Puccinia pseudostriiformis</i>	PUR N5368	Stripe rust	HM057133	[68]
<i>Puccinia pseudostriiformis</i>	PUR 59844	Stripe rust	MT965634	[69]
<i>Puccinia striiformis</i>	PUR 66275	Stripe rust	HM057112	[68]
<i>Puccinia striiformis</i>	DAOM 240069	Stripe rust	HM057118	[68]
<i>Puccinia striiformis</i>	BPI 193871	Stripe rust	HM057135	[68]
<i>Puccinia striiformoides</i>	PUR N5378	Stripe rust	HM057110	[68]
<i>Puccinia striiformoides</i>	K(M): 108141	Stripe rust	HM057125	[68]
<i>Puccinia striiformoides</i>	PUR N5374	Stripe rust	HM057111	[68]
<i>Puccinia triticina</i>	DAOM 240852	Leaf rust	HQ012456	[70]
<i>Pyrenophora tritici-repentis</i>	DAOMC 226213	Tan spot	JN943670	Fungal Barcoding Consortium
<i>Septoria glycines</i>	DAOMC 226244	Brown spot	OL636511	this study
<i>Triticum</i> sp.	RS2089	None; uninfected wheat host	OL712415	this study
<i>Urocystis tritici</i>	RS2070	Flag smut of wheat	OL712414	this study
<i>Ustilago nuda</i>	RS220	Loose smut of barley	OL712412	this study

^a **DAOM:** Canadian National Mycological Herbarium, Ottawa, ON, Canada; **DAOMC:** Canadian Collection of Fungal Cultures, Ottawa, ON, Canada; **PUR:** Arthur Herbarium, Purdue University, West Lafayette, IN, USA; **BPI:** US National Fungus Collections, USDA-ARS, Beltsville, MD, USA.; **K(M):** Royal Botanic Gardens, Kew, UK; **KAS, JB, RS, SH:** AAFC internal DNA ID identifiers.