Exploring the Effects of Fungicide on Field Pea

Long-term trials provide insight into field pea response to annual fungicide applications

by **Chris Holzapfel**

There has been an increase in disease pressure for most crops in southeast Saskatchewan over the past number of years, and field peas have been no exception. Above average precipitation has caused occurrences of major leaf diseases in peas such as ascochyta leaf, pod spot, and mycosphaerella blight. Consequently, foliar fungicide use has been increasing.

For this reason, research done by the Indian Head Agricultural Research Foundation (IHARF) on the effects of field-scale fungicide on pea yields may be of particular interest as we head into the 2014 growing season.

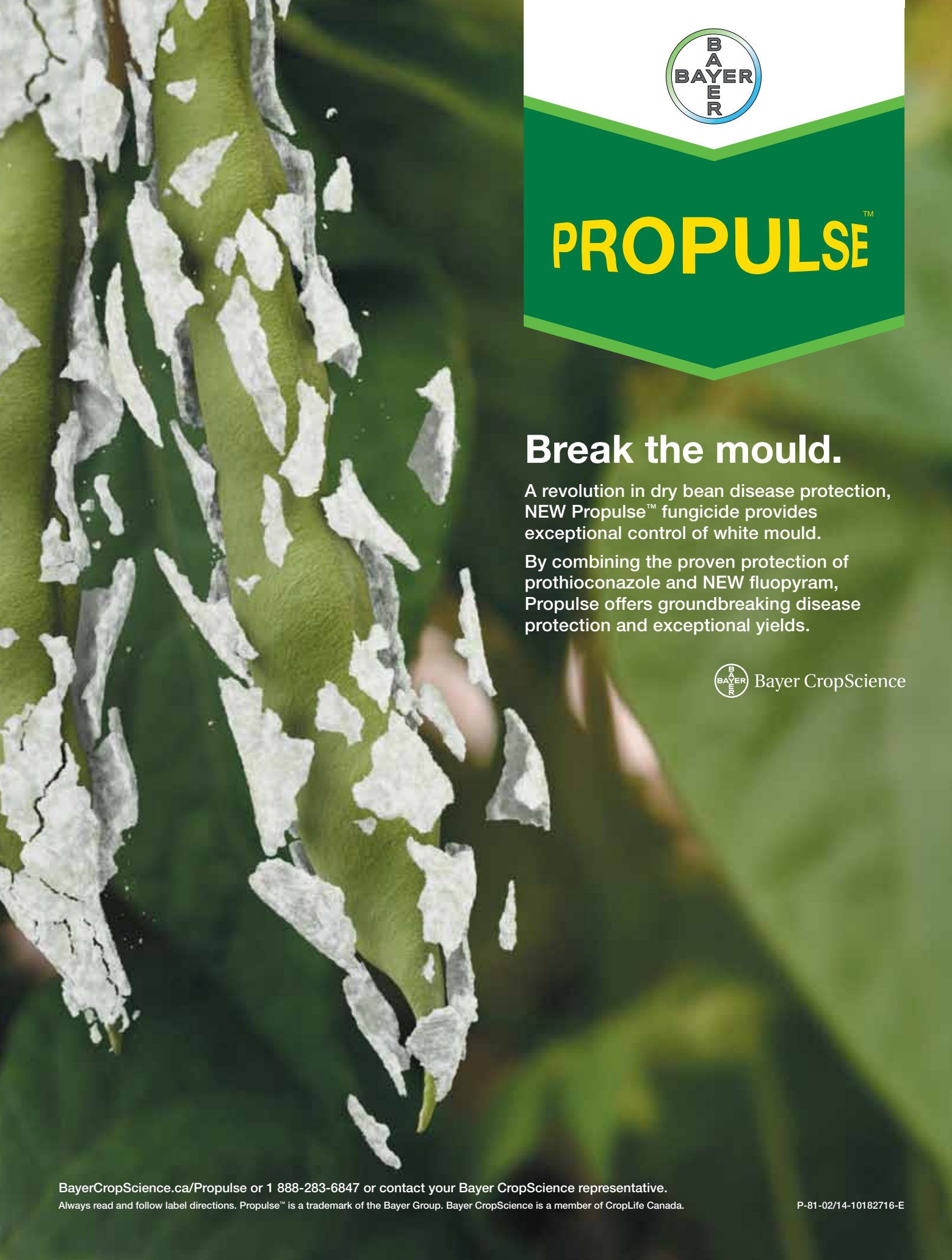
Since 2004, IHARF has been conducting field-scale fungicide evaluations for many crops, including field peas. This data, acquired over many years and a range of conditions, provides insights into the frequency and magnitude of pea yield responses to annual fungicides applied, whether or not there was disease in the crop. The intended benefit of this research is to provide growers with information on the potential benefits of fungicides, while also demonstrating that responses are not typically significant or economical in this region when disease pressure is low. Conducting these fully replicated trials with commercial field equipment and large plots (greater than one acre) ensures that the results are directly transferable to growers without the potential biases and issues of scale that are sometimes associated with small plots.

Since 2004, eight separate trials have been successfully completed

> ***"Mean yields ranged from 30-77 bu/ac and were significantly increased with fungicide application 38% of the time."***

in brief

Long-term trials provide insight into field pea response to annual fungicide applications


BAYER
PROPULSE™
Break the mould.
A revolution in dry bean disease protection, NEW Propulse™ fungicide provides exceptional control of white mould.
By combining the proven protection of prothioconazole and NEW fluopyram, Propulse offers groundbreaking disease protection and exceptional yields.
Bayer CropScience
BayerCropScience.ca/Propulse or 1 888-283-6847 or contact your Bayer CropScience representative.
Always read and follow label directions. Propulse™ is a trademark of the Bayer Group. Bayer CropScience is a member of CropLife Canada.
P-81-02/14-10182716-E

Effects of fungicide application on field pea yield at Indian Head, Saskatchewan

(Yields within a row that are followed by the same letter do not significantly differ)

Year	Check	Headline	Acapela	†Priaxor DS / Headline DUO	June-July Precip.	Avg. Yield Increase
	bu/ac				% of avg†	%
2013	51.5 c	61.5b	60.8b	64.8a	109	20.9*
2012	35.2	45.9a	47.2a	47.9a	125	33.4*
2011	29.3	31.6a	–	–	124	7.9ns
2009	43.6b	49.5a	–	–	106	13.4*
2008	48.3a	50.7a	–	–	84	5.2ns
2007	53.8a	55.8a	–	–	106	3.7ns
2006	54.0a	56.2a	–	–	70	4.0ns
2004	75.4a	79.0a	–	–	61	4.9ns
8 Year Avg.	**48.9**	**53.8**	–	–	**101%**	**10.0%**

†Environment Canada: Long-term average (1981-2010)
‡Headline Duo used in 2012 and Priaxor DS used in 2013

SOURCE: INDIAN HEAD AGRICULTURAL RESEARCH FOUNDATION

near Indian Head. Over the study period, mean yields ranged from 30-77 bushels per acre (bu/ac) and were significantly increased with fungicide application 38% of the time. The tendency was always for yields to be higher with fungicide application, with increases ranging from 2-11 bu/ac, or 4-33%. The yield benefits when June and July were very dry (2004, 2006, and 2008) tended to be small and not likely sufficient to cover the costs of the fungicide application. In 2013, under high disease pressure, Priaxor DS resulted in greater yield increase than Headline or Acapela, presumably due to the fact that this product employs two separate modes of action (Groups 7 and 11).

Visible reductions in lodging were observed in most years with fungicide (but moreso in the responsive years) and consequently easier, faster straight-combining or swathing ensued. It is important to note that yield increases with fungicide cannot be expected each and every year with field pea in the Thin Black soil zone. However, when disease is present, fungicide applications can prevent substantial yield loss. Consequently, to maximize returns on investment, fungicides should ideally only be applied when there is sufficient disease pressure and a reasonably high likelihood of response. The best way to make informed decisions regarding whether or not to spray is to scout for disease on each field and on a regular basis while, at the same time, monitor environmental conditions and weather forecasts.

This research has been supported by IHARF and the Saskatchewan Ministry of Agriculture, through the Agriculture Demonstration of Practices and Technology (ADOPT) program.

bio Chris Holzapfel is the Research Manager, Indian Head Agricultural Research Foundation. He can be reached at cholzapfel@iharf.ca.