

Hart Field-Site Group Inc
PO Box 939
CLARE SA 5453

admin@hartfieldsite.org.au
www.hartfieldsite.org.au



MEDIA RELEASE

Wednesday, 29 September, 2010

HEAT STRESS CAN REDUCE WHEAT YIELD BY A QUARTER

By Gabrielle Hall

Just one day of high temperature at flowering can cause a 25 per cent reduction in wheat yield according to researchers at the University of Adelaide.

Speaking at the Hart Field Day on September 21, Dr Glenn McDonald said early trial results had shown that even a short exposure to heat during the critical time of growth had potential to reduce crop yield by a quarter.

"PhD student Hassim Talukder has been looking at the effect of heat stress at different growth stages to the yield of wheat," he said.

"When we expose the plant to a day of high temperature we get a 25pc reduction of grain yield if it occurs at flowering stage.

"When a high temperature event occurs at the very sensitive stage of development there's a window of two to three weeks around flowering when the maximum damage will occur.

"The other factor which will affect heat stress is how much water is in the soil profile. If there's plenty of water in the soil profile the plant can keep its leaves 2-4C lower than the air temperature, however if there's not enough water in the soil profile the leaves can be up to 4C higher than the air temperature.

"These are just one year's results so they need to be verified, but that's what we've found so far."

Dr McDonald had a heat chamber on display at the Hart Field Day to show how researchers test a sample wheat crop to establish the effects of heat.

"We try to reproduce what happens on a hot day – we start at a lower temperature and gradually heat the air to around 35-36C for three hours as it would on a hot day, and then let it cool down in the late afternoon," he said.

"Just that short period of high temperature in the middle of the day is significant in the reduction of grain yield when it occurs during the flowering stage of growth."

A series of trials at the Hart Field-Site is also testing the importance of the sowing date and flowering date of wheat.

"Time of sowing is really important in terms of the production of wheat," Dr McDonald said.

"There's a 5pc yield loss for every week of delay in sowing. The later we sow the later the crop will flower and flowering time is the single most important time in the development of the crop.

"As it gets later in grain fill and closer to ripening, the wheat plant can cope better with heat stress."

While growers cannot control the weather, Dr McDonald said the heat stress, sowing and flowering time trials were important in helping farmers understand the impact of these events.

Coupled with research on climate change and weather patterns, Dr McDonald said in the long term the heat stress information may assist grain growers with management decisions about sowing strategies and grain variety selection.



Dr Glenn McDonald with the heat chamber used at the Hart Field Day to show the effect of heat stress on wheat.

Media contact: Hart Field-Site Group trials manager Peter Hooper 0427 225 590 or Dr Glenn McDonald 8303 7358.