

more than 4200 adults showed that people who ate ready-to-eat (RTE) breakfast cereal ate significantly less fat and more fibre than those who did not. Among the female 'RTE cereal eaters' surveyed, significantly fewer were overweight (BMI greater than 25), with higher cereal consumption being associated with a lower BMI.

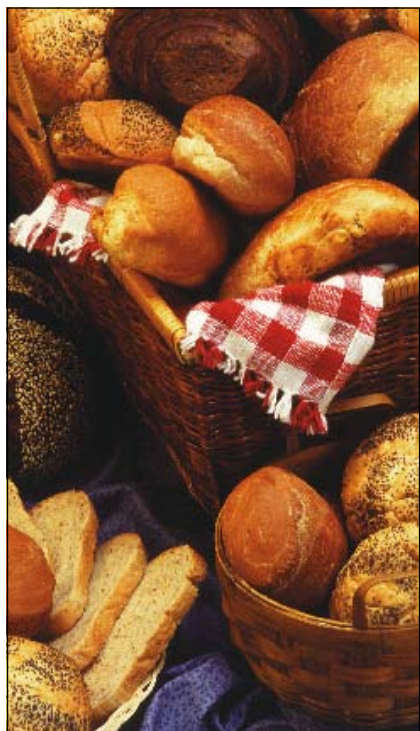
The National Heart, Lung and Blood Institute Growth and Health Study of more than 2000 girls aged nine to 19 years reported that girls who ate breakfast cereal had a lower BMI and lower risk of being overweight, after adjusting for other foods consumed.

The same relationship was found in a survey of more than 600 American children aged six to 12 years. Only 16 per cent of seven to nine year olds who ate more than eight serves of cereal fortnightly were overweight, compared to 50 per cent of those who ate three serves or less.

### WHOLEGRAINS VERSUS REFINED GRAINS

Higher intakes of wholegrain cereals and legumes are consistently associated with a lower BMI, waist circumference and overweight. One large study showed a slightly higher waist-to-hip ratio (but not BMI), with a higher consumption of refined grain foods, but other studies have not supported this finding.

The weight changes, although statistically significant, appear to be relatively minor (less than 0.7 kg over a 12 year period).



The Nurses Health Study examined the relationship between grain consumption and the development of obesity in around 74,000 nurses over 10 years. This study found increased intakes of wholegrain were associated with less weight gain. An increase in refined grains was associated with slight weight gain (0.99 kg versus 1.65 kg).

The BLSA study followed approximately 450 people for seven years and found significantly greater annual increases in waist circumference (1.32 cm versus 0.43 cm), but not BMI, among people who ate more white bread (15.8 per cent total energy from white bread), compared to those who ate less white bread (3.2 per cent total energy from white bread). ■



## CROP DOCTOR SOUTH

With Peter Reading

### RESULTS FLOW FROM WATER WISDOM

Plant available water capacity (PAWC) is a measure of the amount of water held in the soil and available to a crop. Soils with a high PAWC often have greater yield potential.

By understanding PAWC, grain growers can also gauge how much stored soil water is available for production at the start of the season.

It can improve understanding of yield variability across a paddock, enabling growers to identify poor performing areas and subsurface constraints. Growers are then better placed to predict yield potential and assess fertiliser requirements.

PAWC is determined by the drained upper limit (DUL), or the amount of water a fully wet soil can hold after drainage has ceased, as well as crop lower limit (CLL), or the amount of water left after a crop has extracted all available water from the soil profile. Factors affecting CLL include soil type, acidity, salinity, compaction, drainage and root depth of the crop species planted.

Grains Research and Development Corporation (GRDC) supported research by Neal Dalgliesh and his team at CSIRO Sustainable Ecosystems across Australia resulted in the APSOIL web-accessible database.

Dr Yvette Oliver said data from 100 WA cropping soil profiles is grouped by agricultural region (northern, central and south coast) and WA soil group.

The data can be accessed at two websites: [www.apsim.info/apsim/Products/Apsol.asp](http://www.apsim.info/apsim/Products/Apsol.asp) and [www.asris.csiro.au/index](http://www.asris.csiro.au/index)

Google Earth, accessed through the above sites, can also be used to view site locations and soil data can be downloaded for personal use.

According to Neal and Yvette, there is no substitute for growers measuring and understanding their own soil PAWCs.

### PAWC workshops

They recommend growers attend GRDC supported workshops to learn about PAWC and collect information on the full range of soils in the wheatbelt.

Workshops in WA can be organised for your grower group or region by contacting Yvette Oliver, Ph: 08 9333 6469.

She said the APSOIL database can provide *Yield Prophet* users with estimated PAWC parameters for a soil type where no soil measurements exist.

Also, with knowledge of soil PAWC, a soil from the APSOIL database and historical climate information, *Yield Prophet* can consider different scenarios. These include:

- PAWC's impact on yield potential over a range of seasons, using long term weather records;
- Impact of various seasonal finishes on yield; value of stored moisture on yield expectations;
- Effect of sowing date on yield, historically and as the season progresses; and,
- Potential benefits of in-crop nitrogen application based on known soil starting nitrogen and seasonal conditions to a certain date.

A free research report, 'Estimating Plant Available Water Capacity', will soon be available from Ground Cover Direct, Freephone 1800 11 00 44 or Email [ground-cover-direct@canprint.com.au](mailto:ground-cover-direct@canprint.com.au)

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