

Researchers develop highest yielding salt tolerant wheat

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A field of salt tolerant durum wheat grown in northern New South Wales as part of a CSIRO field trial. (CSIRO)

(PhysOrg.com) -- In a major breakthrough for wheat farmers in salt-affected areas, CSIRO researchers have developed a salt tolerant durum wheat that yields 25 per cent more grain than the parent variety in saline soils.

Recent field trials in northern New South Wales proved that durum [wheat varieties](#) containing new salt tolerant genes outperformed the other varieties in saline soils.

The breakthrough will enable wheat farmers to achieve higher yields of durum wheat in saline soils. Although durum wheat is less salt tolerant than [bread wheat](#) it attracts a premium price because of its superior pasta making qualities.

"By planting the new salt tolerant durum wheats in different levels of salinity and comparing their yield with other durum wheats, we've demonstrated an impressive 25 per cent yield advantage under saline [soil conditions](#)," says CSIRO scientist, Dr Richard James.

The CSIRO Plant Industry research team

responsible for the breakthrough recently isolated two salt tolerance genes (Nax1 and Nax2) derived from the old wheat relative *Triticum monococcum*.

"Both genes work by excluding sodium, which is potentially toxic, from the leaves by limiting its passage from the roots to the shoots," says the leader of the project, Dr Rana Munns.

Through traditional, non-GM breeding methods aided by molecular markers the team was able to introduce the salt exclusion genes into durum wheat lines.

Salinity, a major environmental issue affecting much of Australia's prime wheat-growing areas, often prevents farmers from growing durum wheat.

Provided by CSIRO

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