GETTING NITROGEN RIGHT FOR IRRIGATED WHEAT

Just as Goldilocks wanted it, nitrogen management for irrigated wheat has to be just right. Too much increases the risk of lodging and disease; too little limits plant biomass and yield.

Lucy Kealey
Editor, IREC Farmers Newsletter

THE potential for good winter crops and the high price of fertiliser in 2022 make it timely to have a good plan for nitrogen management for irrigated wheat this season. Getting it 'just right' means working towards a target and understanding the variables of the season and the paddock you are working with.

How much nitrogen is enough?

An irrigated wheat crop needs approximately 40 kg of nitrogen for each tonne of grain produced. Split applications allow for the fertiliser program to be fine-tuned according to crop development and seasonal conditions. Generally, fertiliser should be applied at sowing, between tillering and stem elongation, and between flag leaf and booting.

There will be nitrogen in the soil at sowing and nitrogen mineralised during the growing season, so preparing a nitrogen budget will help work out how much nitrogen needs to be supplied as fertiliser.

Table 1. An example nitrogen budget for a high yielding irrigated wheat crop.

Target yield 8 t/ha	Nitrogen (kg N/ha)
Total nitrogen required during season (based on 40 kg N/t grain)	**320**
Mineral nitrogen in soil at sowing (determine with 0–60 cm soil test before sowing)	75
Fertiliser nitrogen applied at sowing (DAP 160 kg/ha)	29
Estimated mineralisation during the season	80
First topdressing – urea 100 kg/ha	46
Second topdressing – urea 180 kg/ha	83
Total nitrogen budget	**313**

Adapted from NSW DPI publication Irrigated wheat in southern cropping systems *(2017)*

Keep track of potential

The nitrogen program must accommodate other factors that influence yield potential. An 8 t/ha crop (or higher) needs the right variety sown at the right time, sufficient phosphorus (4 kg P/t of grain) and other nutrients, plant population of 150–200 plants/m², tiller count of 500–800 tillers/m² and water supply of 5.5 ML/ha from rain and irrigation.

Read more

Irrigated wheat in southern cropping systems (NSW DPI)
Paddock Practice: assessing fertiliser profitability (GRDC)

Leeton Field Station hosted a site for the GRDC and NSW DPI project, *Southern irrigated cereal and canola varieties achieving target yields* (2014–17). The project led to the guide *Irrigated wheat in southern cropping systems*. Tony Napier, NSW DPI, Yanco, published several articles from this trial in previous editions of the *Farmers Newsletter*. PHOTO: Tony Napier

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