NIAB Plant Science into Practice

MORE WHEAT/HA HELPS TACKLE CLIMATE CHANGE

NIAB is working with members to:

- explore options for reducing tillage and/or optimising trafficking
- improve soil structure and reduce establishment costs.

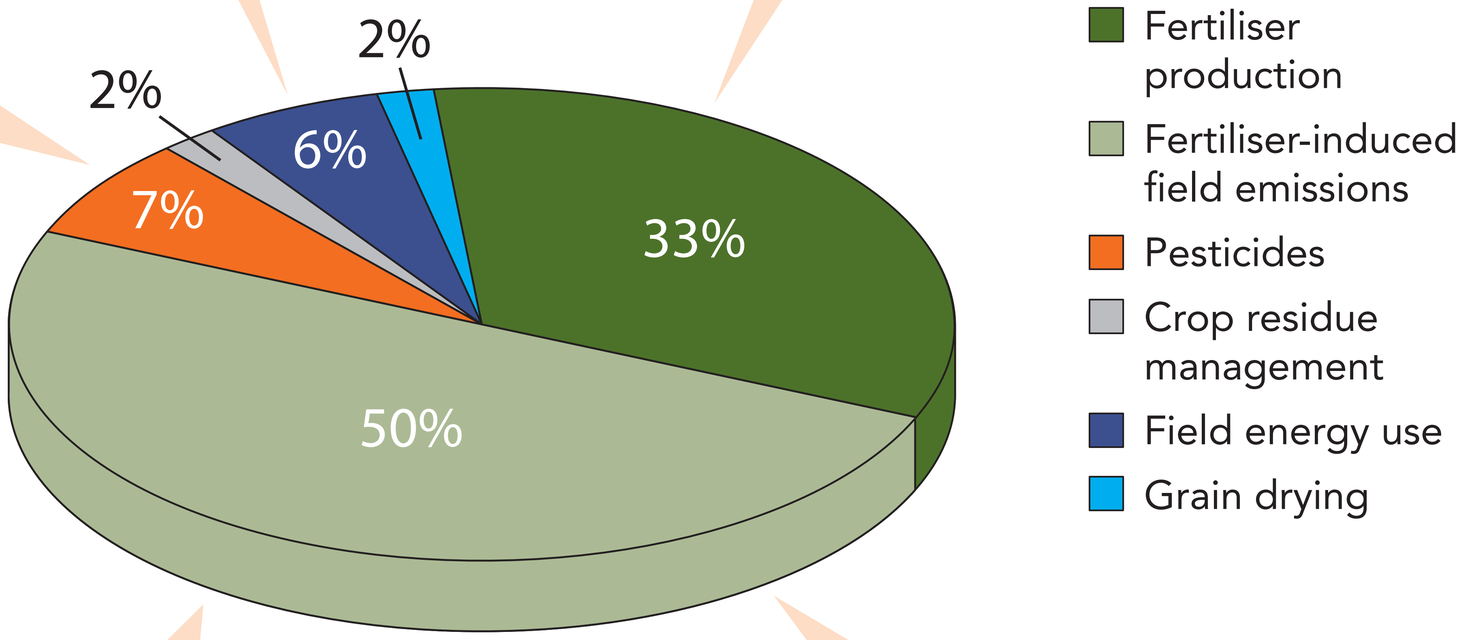
NIAB is working to develop:

- high yielding varieties
- synthetic wheats with high biomass and better N-utilisation
- improved water/radiation use efficiency to give higher yields under 'normal' inputs.

NIAB is helping reduce pesticide use by:

- improving disease and pest resistance in wheat varieties
- testing F1 hybrids – to achieve higher performance with lower inputs.

Typical CO_2eq emissions from wheat production; many of these losses are as N_2O



NIAB is improving in-field N use by:

- exploring options to increase N efficiency and reduce losses with nitrification inhibitors
- demonstrating how improved soil health can improve N use efficiency.

NIAB is working to increase N use efficiency and/or reduce N use through better varieties by:

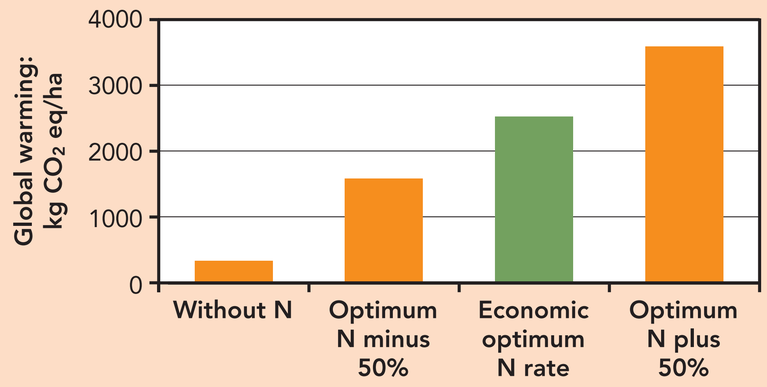
- investigating nitrogen-use efficient varieties/traits
- testing F1 hybrids – to achieve higher performance with lower inputs
- collaborating with the Crop Science Centre into the development of nitrogen-fixing wheat.

Soil holds lots of the world's C

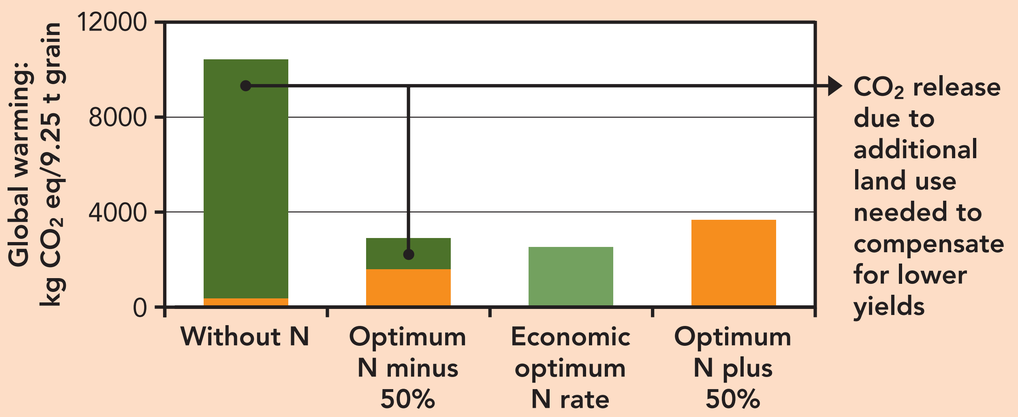
- Converting forest or grassland to cropping is a major source of CO_2
- Sequestering C in soil is a slow process but a small change can give big global benefits
- Improving levels of soil organic C in arable soils improves the resilience of production.

NIAB is giving farmers the tools they need to measure soil health.

Wheat production CO_2eq emissions/ha



CO_2eq emissions/ha are strongly related to N use but reducing N input reduces yield



At lower yield levels, more land is needed to produce the total amount of wheat needed, so CO_2eq emissions increase.

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