

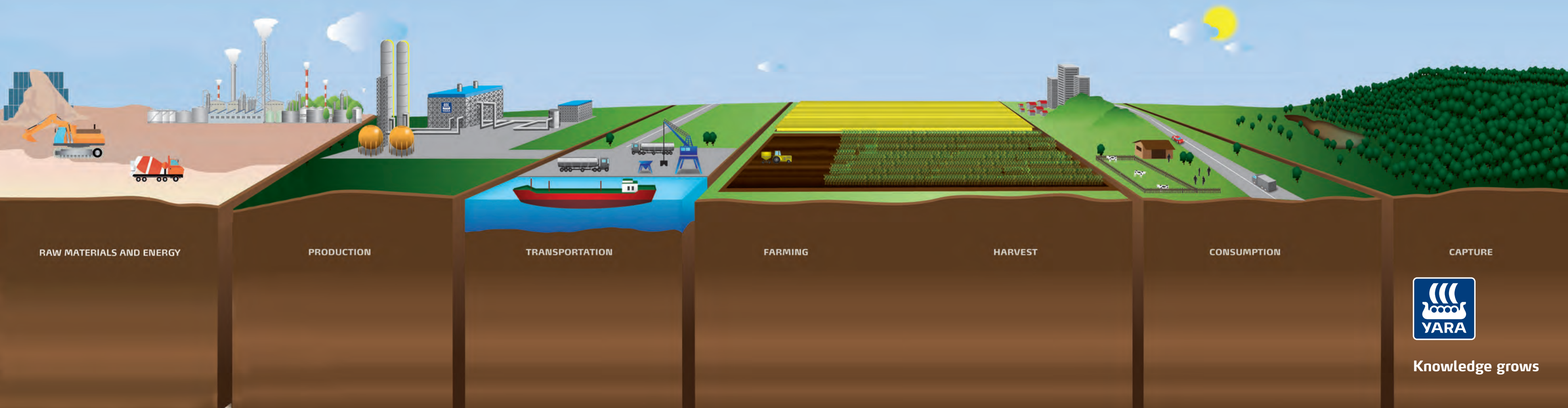


Knowledge grows

Better Carbon Footprints

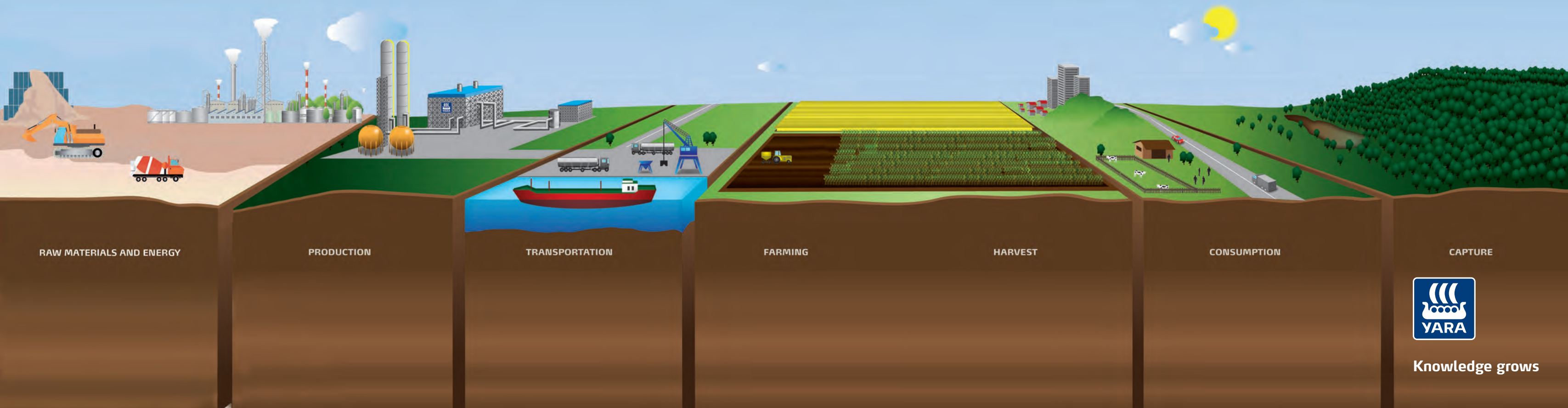


The life cycle of fertilizer



The life cycle of fertilizer

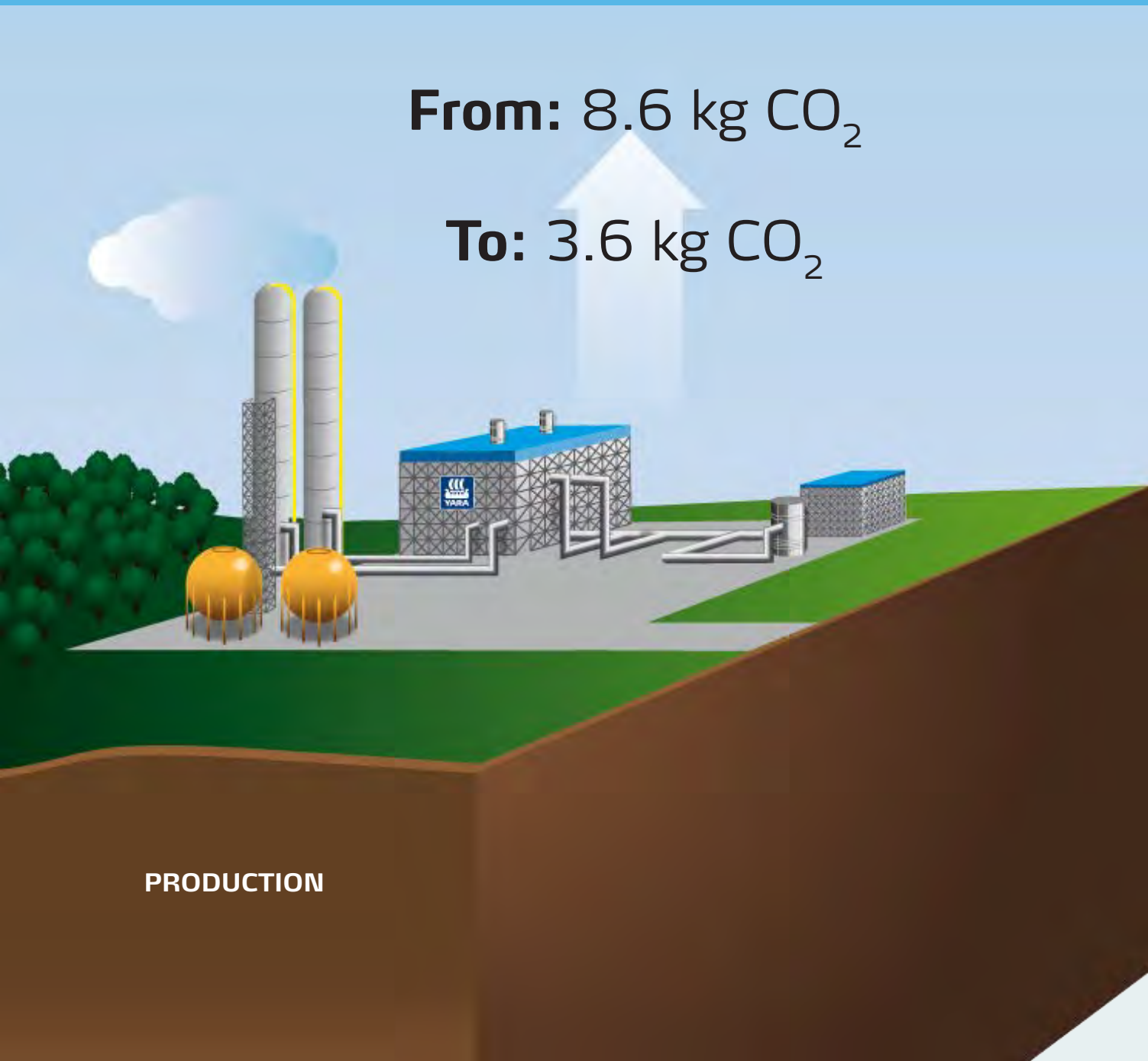
- Agriculture is responsible for about a quarter of global greenhouse gas (GHG) emissions
- Roughly half of these come from land use change – turning forests and wetlands into farmland
- Emissions from production and use of nitrogen fertilizer amount to about 2.5% of total emissions



Improving the production process

From: 8.6 kg CO₂

To: 3.6 kg CO₂



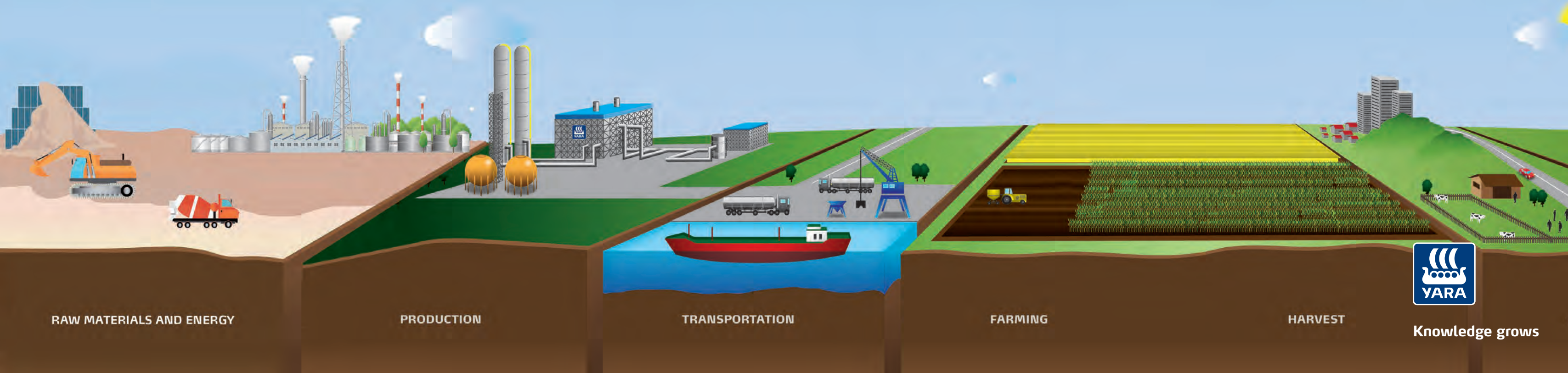
PRODUCTION

- Cradle-to-gate analysis
- Innovation process to drive down emissions
- Yara has successfully reduced emissions from the production process for nitrate fertilizers
- Emissions from plants not using such Best Available Technology are typically twice as high



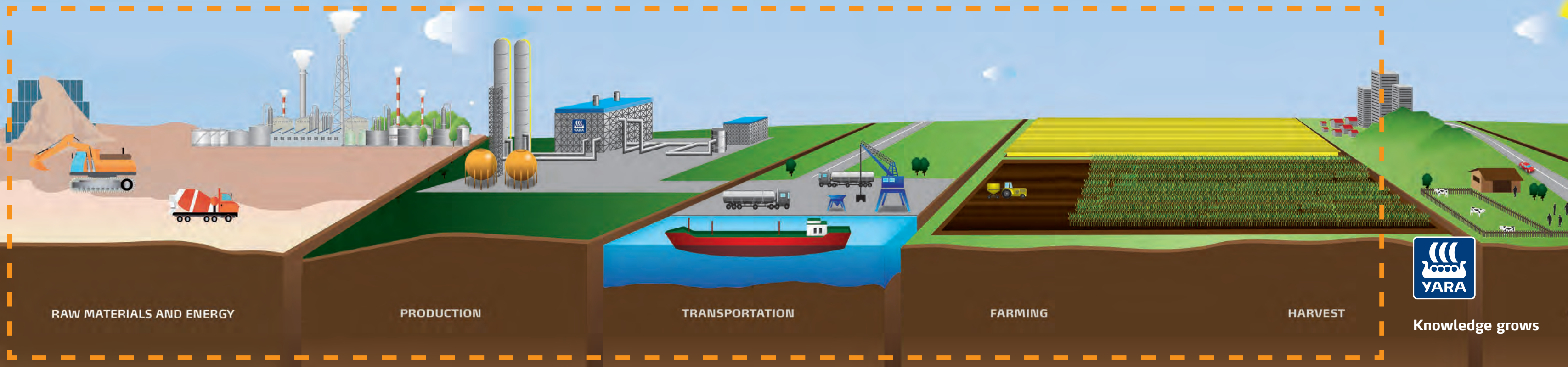
Knowledge grows

Improving the life cycle understanding – overall reductions



Improving the life cycle understanding – overall reductions

- A full Life Cycle Assessment must include all emissions and mitigation up to the harvested crop
- This covers most fertilizer-related impacts
- This LCA approach is used e.g. in the Cool Farm Tool and supported by Fertilizers Europe
- Potential land use change effects must also be taken into account – low-yielding systems will occupy more land to cover the same market demand



Improving the life cycle understanding – overall reductions

Production:

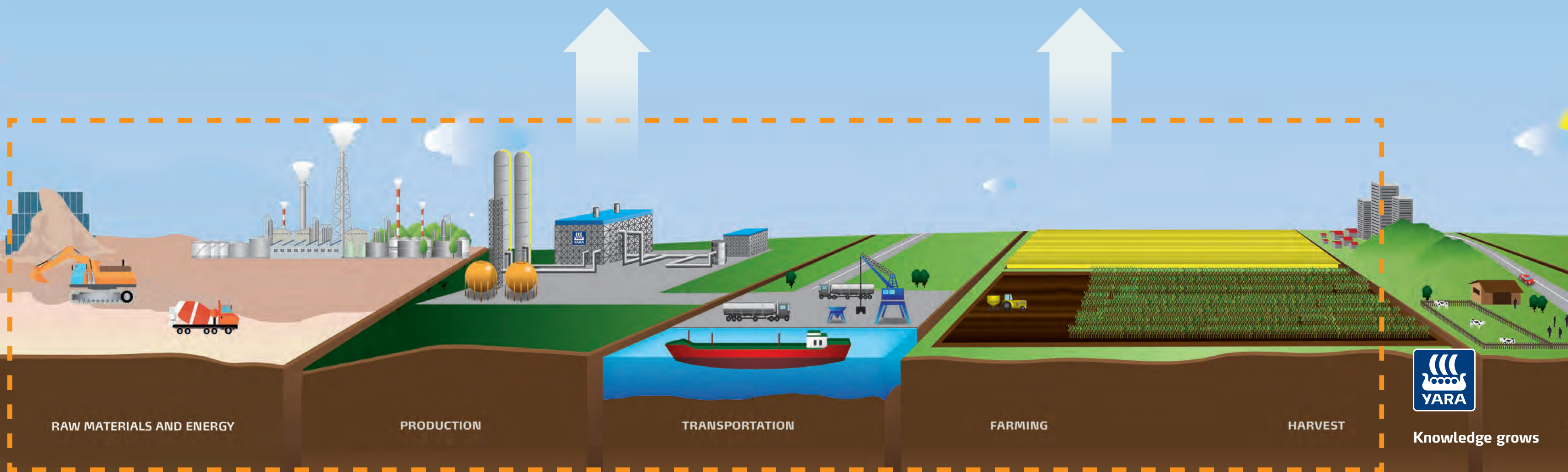
- Catalyst technology halves the emissions

Use:

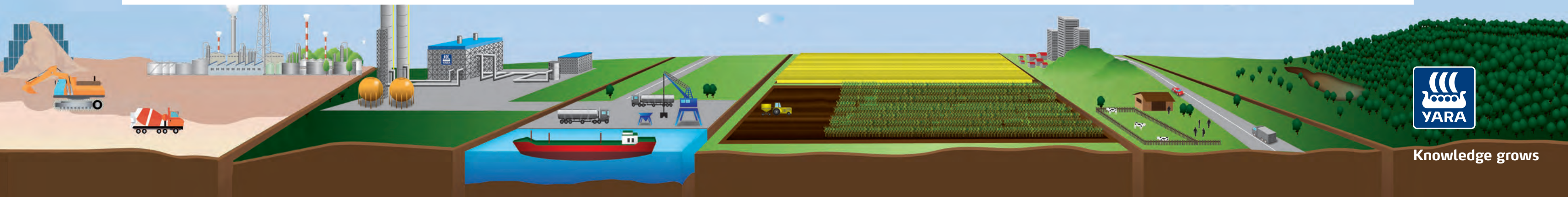
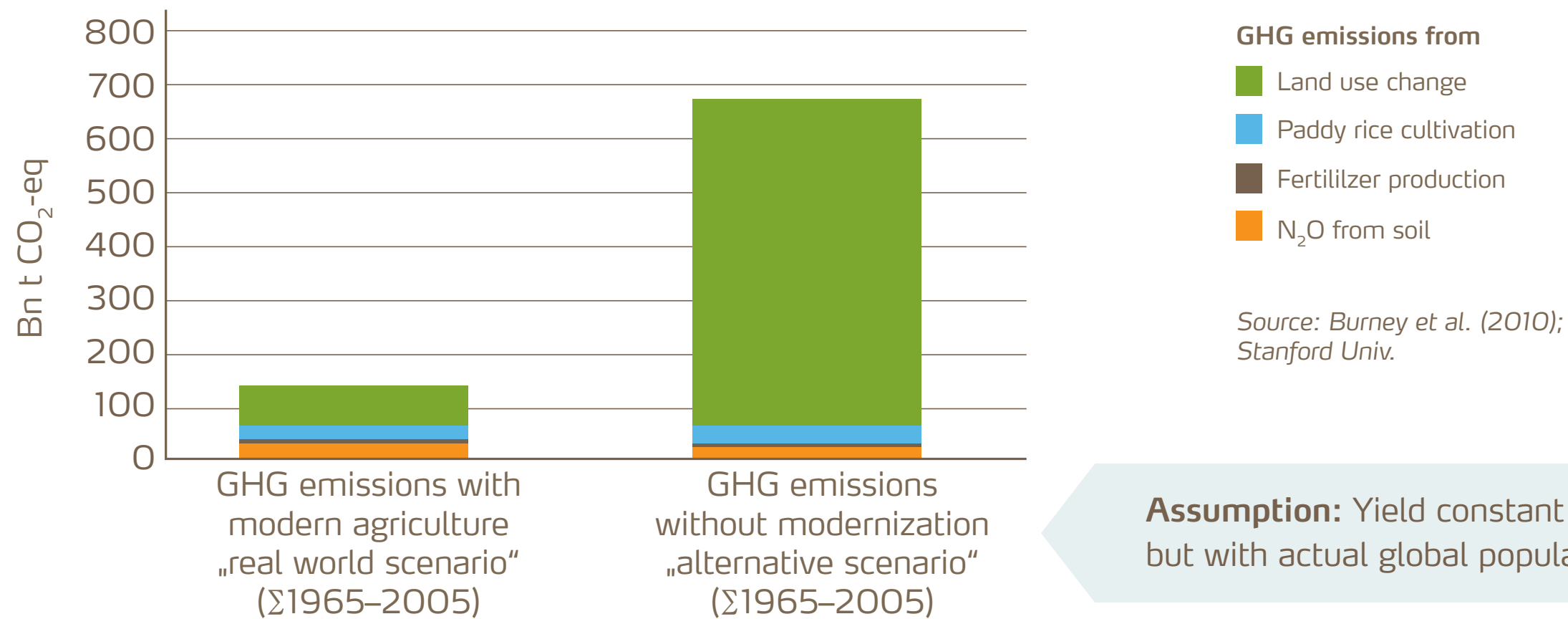
- Best practice application

Total LCA can be:

-50 %



GHG emissions would have been 4.5 times as high if crop yields stagnated in 1961





Knowledge grows

