

# **CIMMYT Research on Crop Nutrition: 2022 Plans**

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# CIMMYT

Part of CGIAR; founded in 1966

Mission: **Maize and wheat science for improved livelihoods**

## 13 offices

Afghanistan  
Bangladesh  
China  
Colombia  
Ethiopia  
India  
Kazakhstan  
Kenya  
**Mexico**  
Nepal  
Pakistan  
Turkey  
Zimbabwe



1,600 staff from over 50 countries  
With >300 partners

 Projects in over 40 countries



# CIMMYT research focus

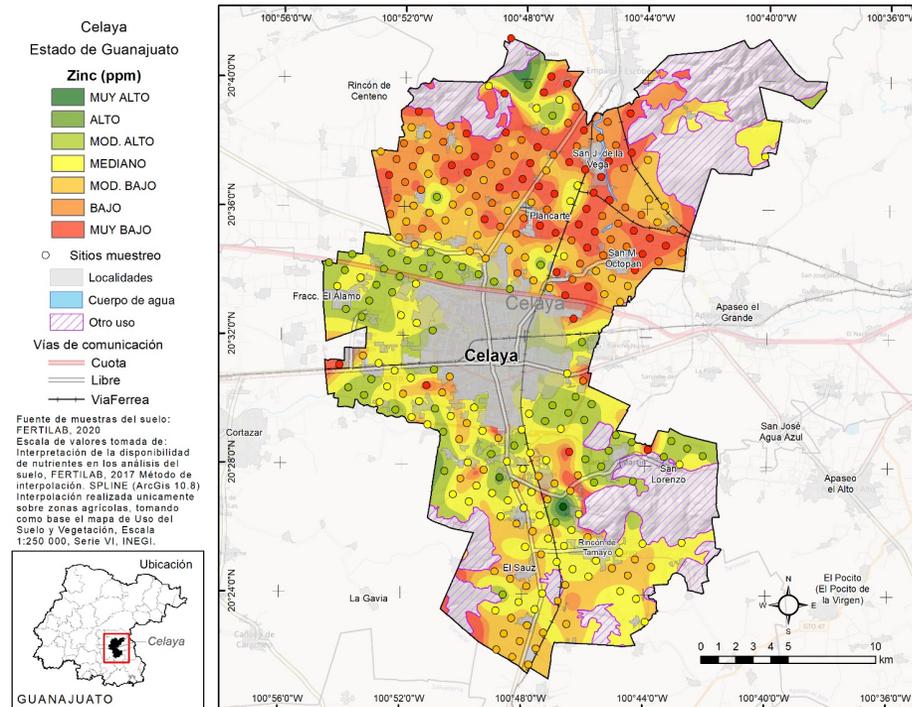
- Our objectives:
  - Maximize overall utility rather than yield
  - Minimize use of external inputs
  - Reduce environmental impact of agriculture
- Strategy for nutrient management in maize and wheat systems:
  - Starting from limiting factors
  - Tillage, crop establishment, crop residues
  - Diversification, where possible including legumes,
  - N management tools, techniques and strategies
  - GHG mitigation work for all these practices



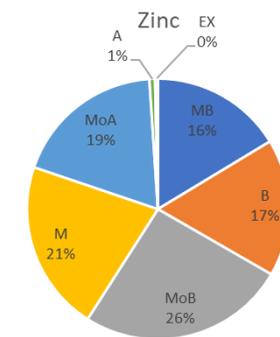
# 2022 plans

- Mexico: continue to develop regional fertility maps using systematic soil sampling at the municipality level to come up with regional fertilizer and soil amendment recommendations

Example: Zinc in Celaya, Guanajuato



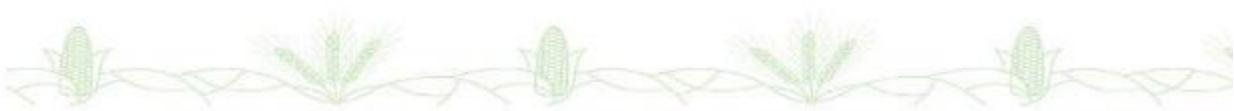
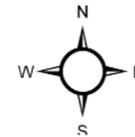
- 20% very high to moderately high
- 21% medium
- 59% low to moderately low



# 2022 plans

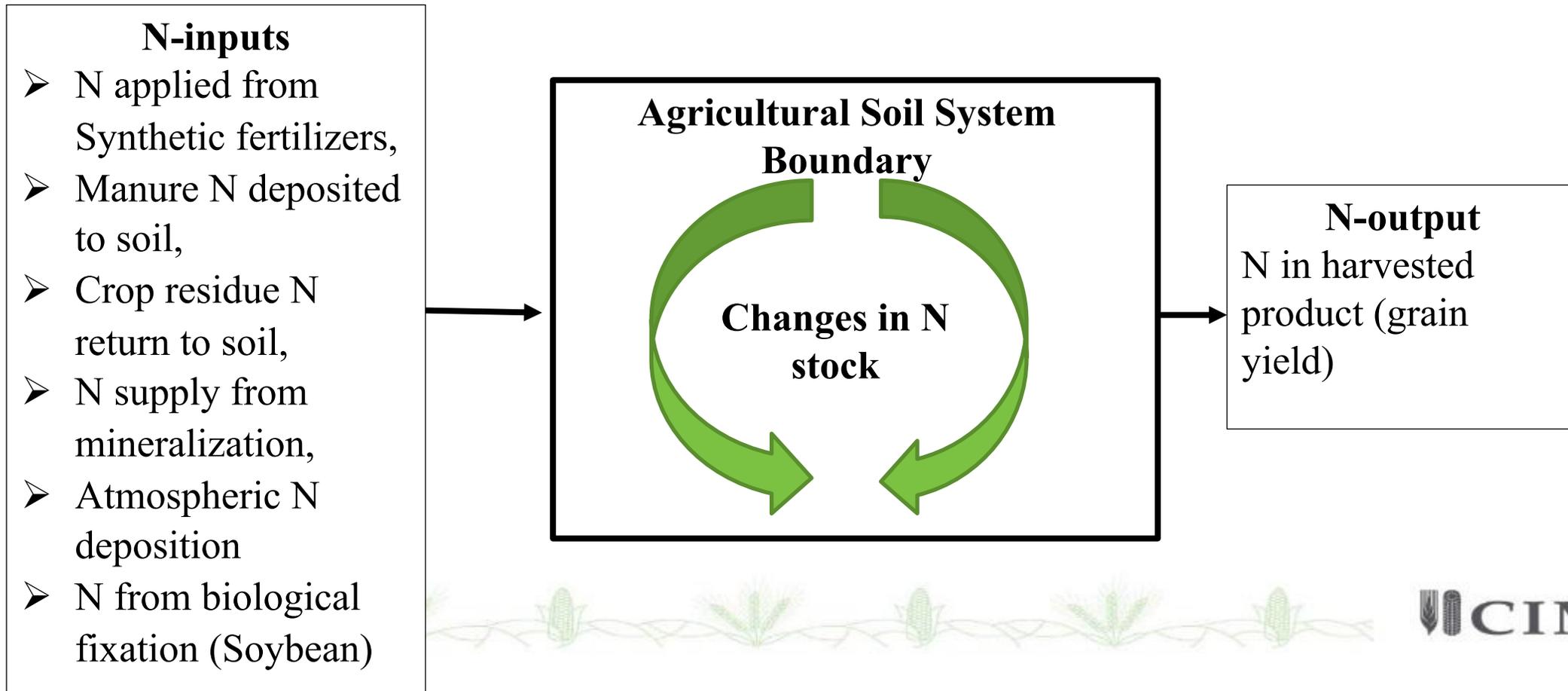
- India: Studies with new molecule with nitrification inhibition properties as an enhanced efficiency fertilizer for use in major cropping systems in India

- Started during winter 2020-21
- AGROTAIN incorporated urea produces with N-TEGRATION™ Technology
- Project supported by KOCH Agronomic Solutions Pvt Ltd
- 7 locations
- Preliminary results indicate increased NUE



# 2022 plans

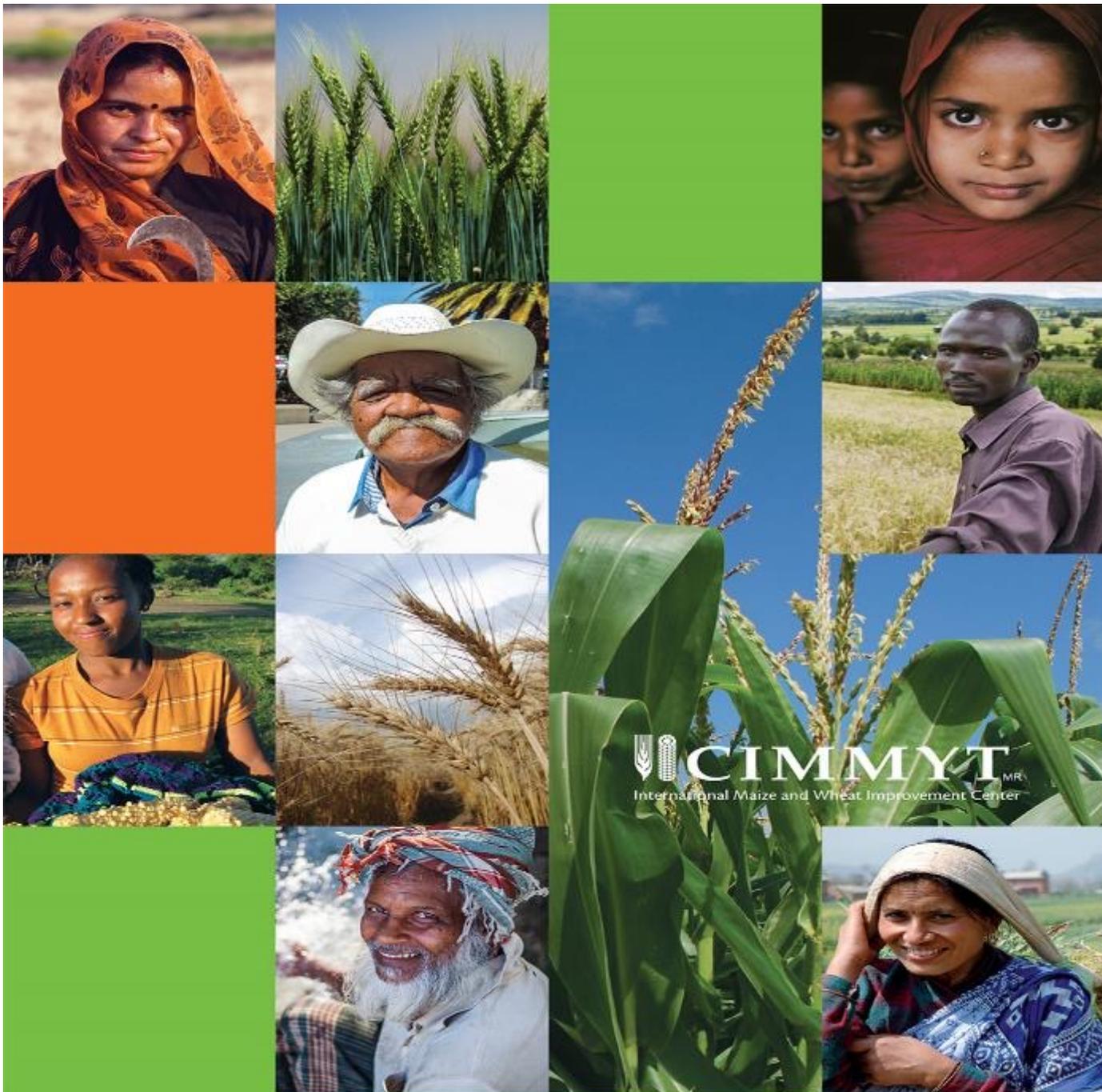
- Global NUE atlas: <https://nue-dashboard.ngrok.io/>



# Recent publications

- Nayak et al. 2022. Point placement of late vegetative stage nitrogen splits increase the productivity, N-use efficiency and profitability of tropical maize under decade long conservation agriculture. *Eur J Agron* 133, 126417 <https://doi.org/10.1016/j.eja.2021.126417>
- Tesfaye et al. 2021. Model comparison and quantification of nitrous oxide emission and mitigation potential from maize and wheat fields at a global scale. *Science of the Total Environment* 782, 146696. <https://doi.org/10.1016/j.scitotenv.2021.146696>
- Sapkota et al. 2021. Crop nutrient management using Nutrient Expert improves yield, increases farmers' income and reduces greenhouse gas emissions. *Scientific Reports* 11:1564. <https://doi.org/10.1038/s41598-020-79883-x>
- Maaz et al. 2021. Meta-analysis of yield and nitrous oxide outcomes for nitrogen management in agriculture. *Global Change Biology*, <https://doi.org/10.1111/gcb.15588>
- Grahmann et al. 2021. Dry sowing reduced durum wheat performance under irrigated conservation agriculture. *Field Crops Research* 274, 108310. <https://doi.org/10.1016/j.fcr.2021.108310>
- Jat et al. 2021. Precision nutrient rates and placement in conservation maize-wheat system: effects on crop productivity, profitability, nutrient-use efficiency, and environmental footprints. *Agronomy* 2021, 11, 2320. <https://doi.org/10.3390/agronomy11112320>





**Thank you for  
your interest!**

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