



Developing Agriculture from the Ground Up

LABORATORY & GREENHOUSE CAPABILITIES



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The IFDC Research Division has focused on nutrient efficiency since its inception to achieve higher yields while reducing costs and nutrient losses. Through public-private partnerships, IFDC has been part of major developments in nutrient use efficiency with fertilizer deep placement and controlled-, slow-release, and stabilized fertilizer products.

In collaboration with our on-site Engineering and Pilot Plant Services, and through our presence in various countries around the world, we are the only organization capable of taking a fertilizer technology idea from our labs to production testing to field trial implementation.

RESEARCH/PRODUCT DEVELOPMENT

- **Nitrogen efficiency:** inhibitors and stabilizers, coatings, nano-materials, and slow release.
- **Phosphorus availability:** phosphate rock activation, slow release, rhizosphere chemistry, and alternate production pathways.
- **Balanced nutrition:** efficient nutrient delivery and bio-availability, and soil and plant health.
- **Nutrient recycling:** fertilizers integrated with organic amendments.

ANALYTICAL LABORATORIES

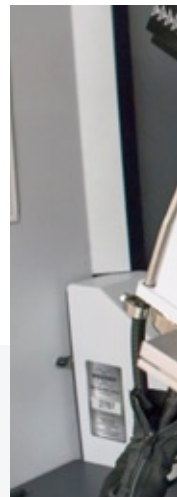
Our Analytical Laboratories are equipped with ICP-OES, HPLC, Combustion Analyzer, Particle Size Analyzer, X-Ray Diffractometer, and Flow Analyzer. We also have additional equipment to measure nutrients in fertilizer, soil, and plant tissue.

- **Fertilizer analysis:** Our bench-scale coating laboratory is equipped to conduct coating research for slow- and controlled-release fertilizers. IFDC's fertilizer analysis lab is able to evaluate the products in the market, and the quality control lab provides important data on nutrient content (N, P, K, secondary and micronutrients) for production facilities.
- **Soil analysis:** To understand the current status of soils and avoid overapplication of fertilizers, we analyze the chemical and physical properties of the soil (pH, organic matter, CEC, texture, N, P, K, secondary and micronutrients).
- **Plant/tissue analysis:** Our plant/tissue labs complement the greenhouse and field research conducted at IFDC Headquarters and around the world to evaluate plant nutrient uptake (N, P, K, secondary and micronutrients).

GREENHOUSES

IFDC has four greenhouse facilities used to analyze and evaluate fertilizer product quality:

- Our **volatilization** lab is capable of measuring nitrogen loss of various combinations of fertilizer types and rates and soils in a controlled environment.
- **Leaching** analysis is used to measure nutrient loss through soil leaching.
- GHG **emissions** (N_2O , CH_4 , NO) are measured through greenhouse and field trials.



CROP MODELING

Decision support tools help farmers apply agricultural research based on geography and markets by using crop modeling and analyses of soil, weather, and market information to increase yields and profits. Tools available:

- Decision Support System for Agro-technology Transfer (DSSAT)
- Geographic Information Support System for Agro-technology Transfer (GSSAT)
- Phosphate Rock Decision Support System (PRDSS)

GEOGRAPHIC INFORMATION SYSTEM (GIS) SERVICES

IFDC assists many areas around the world and is working to develop a better understanding of their crops and overall environment. Our GIS analysts use spatial and statistical methods to analyze available attributes and geographic information that provide us with vast knowledge about the areas where we work.

FIELD TRIALS

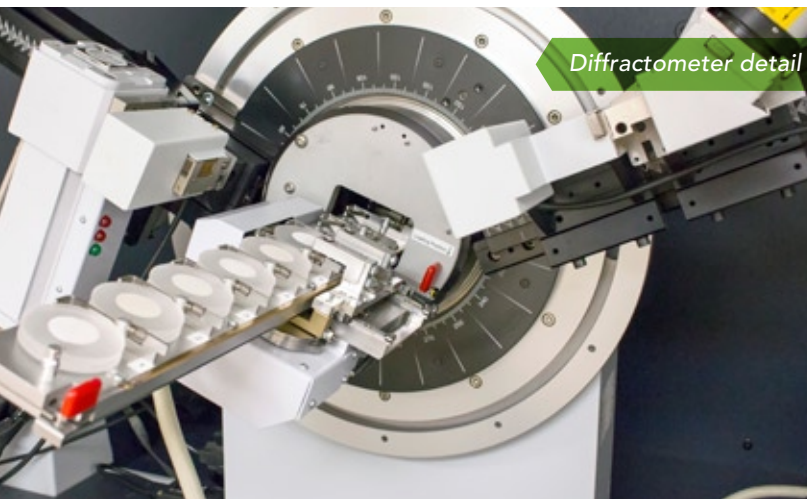
IFDC is the only organization capable of taking your technology from our lab to scalability testing to field trial implementation. These trials are conducted in collaboration with universities and partners in a variety of different climates and soil conditions.



At work in the coating lab



View of the greenhouse interior



Diffractometer detail

All process and product development are conducted under confidentiality agreements and all technology that is developed goes to the ownership of our client.

The **International Fertilizer Development Center (IFDC)** is a nonprofit public international organization which helps developing countries increase food security through the development and dissemination of fertilizers and application practices that meet the needs of farmers worldwide.

For more information, contact us directly at +1 (256) 381-6600.

