

## **Priority Areas of Study**

The ICAR International Fellowships are available in frontier areas of Agriculture and allied sciences at the recognized agricultural universities/ institutions in India and abroad. The identified priority areas are-

**Biotechnology in plants, animals and fisheries:** Gene knock-down technology, marker assisted selection (MAS), allele mining, transgenic technology, microbial molecular taxonomy, diagnostics and vaccines, molecular breeding, genome resource conservation, biofortification, bio-prospecting, bioremediation, bio-security, non-chemical non-thermal processing and membrane technology, apomixes, stem cell research, fermentation technology, nutri-genomics, nutra-ceuticals, bi-economics of effective agro-technologies

Epigenetics and reproduction, Next generation gene sequencing, Immuno-physiology

**Nanotechnology** applications in agriculture comprising plant, animal and fisheries/ aquaculture sciences, natural resource management, Food/Fish processing etc.

**Climate Change:** Impact, adaptation, mitigation, Soil Carbon Sequestration, carbon trading/carbon sequestration in agro-ecosystems, methane mitigation in livestock etc.

**Micro-molecules**

**Bioinformatics, Bio-environmental engineering, Ergonomics and agricultural safety,**

**Advanced machine design,**

**Sensor-based applications including bio-indicators, bio-sensors**

**Endophyte biology**

**Agriculturally important biodiversity (including fisheries)**

**Herbivory process**

**Precision agriculture/farming, Hi-tech Horticulture, Aeroponics, Controlled environment agriculture**

**Functional foods/Health foods,**

**Post harvest management, Food Engineering, Extraction of bio-active compounds,**

**Novel techniques for storage of food grains/food fishes, Processing and value addition,**

**Extrusion processing, Designer fish foods, Value chain management, Smart/modified atmosphere packaging,**

**Canopy architecture management, Ultra High density orcharding**

**Development of pest and disease forecasting models, Development of diagnostics**

**Agri-waste utilization, Peri-urban horticulture, organic farming**

**Nutrient bioavailability**

**GIS & remote sensing, geo-informatics, image processing**

**Water Footprint and virtual water, Phyto-biomediation of waste/poor quality water Soil & water conservation engineering, Conservation of bio-resources and species modeling, Soil microbe interactions for organic matter and nutrient dynamics**

**Computer aided designing of implements and processing plants**

**Bio-fuels**

**Veterinary health**

**Fresh water/Marine/Cold water fish breeding and culture**

**Pearl/crab culture, Fish disease diagnosis, vaccines and Immunoprophylaxis**

**Intensive aquaculture (cage culture, raceways)**

**Organic/ornamental aquaculture, Fish food formulation, FCR & flesh quality enhancement**

**Food safety and quality assurance, HACCP&GMP in Fish processing**

**Market intelligence, Multi-market modeling**

**Research evaluation and impact assessment**

**Institutional economics.**

**Decision Support Systems**

**Agro-forestry and sustainable Livelihoods**

**Management of sea water intrusion in inland and coastal aquifer**

**Note: The other frontier areas in agriculture and allied sciences may also be appropriately considered.**