The Feed Technology Research platform located at the ICRISAT campus in Patancheru, India is part of the Feed and Forage Development program of the International Livestock Research Institute (ILRI). The platform supports ILRI work in Asia and East and West Africa under the CGIAR Research Programs on Livestock (Livestock CRP), Grain Legume and Dryland Cereals (GLDC) and numerous bilateral projects.

Key research areas of the platform are:

1) Developing tools that can rapidly and affordably analyze fodder quality, generate feed demand and supply information and formulate balanced least cost rations;
2) Increasing the availability of quality feed biomass from forages and crop residues;
3) Making better use of existing feed resources through feed processing, preservation and supplementation options; and
4) Developing and supporting feed and fodder value chains.

- ILRI’s only lab in South Asia with an advanced feed evaluation facility equipped with stationary, mobile and hand-held NIRS spectroscopy tools
- Phenotyping of a wide range of laboratory food and feed quality parameters in between 15,000 and 33,000 feed samples every year
- Confirm and validate laboratory feed quality parameters by animal performance trials
- Collaborative work with national (NIANP, NRRI, IIMR, EIAR) and international (ICRISAT, CIMMYT, IRRI) crop centres on ‘full purpose crops’ using conventional and molecular breeding techniques
- Field piloting with state government departments (Karnataka, Odisha) to improve the basal diet of animals through dual purpose cultivars, feed processing and balancing
- Works on converting roughages into concentrates using 2nd Generation biofuel technologies
- Engagement in feed value chains to increase the availability of off farm produced feed and to generate income and employment in feed and fodder value chains
Infrastructure facilities at the feed platform

1. Wet laboratory: the conventional wet laboratory has facilities for all proximate analysis of dry matter, organic matter, crude protein and fibre fraction estimations.

2. In vitro laboratory: has 300 fermentation vessels for analysis of apparent and true in vitro digestibility, rate of fermentation and partitioning of rumen degradation products allowing estimation of methane production in vitro.

3. NIRS laboratory: the feed platform has been equipped with stationary (FOSS 5000, 6500 and XDS RCA), mobile and handheld NIRS technologies (Brimrose, Thermo, TellSpec and Scio). The platform had developed more than 70 global NIRS equations for feed and food traits. The platform supports NIRS use and hub formation, as well as training in NIRS technologies, for Asia and a range of countries in East and West Africa. It also assists CGIAR centres, NARES and the private sector.

4. In vivo experimental facility: this facility has metabolic cages designed for conducting individual animal performance measurements in 60 small ruminants and 24 large ruminants.

5. Experimental feed processing unit: this unit has feed processing facilities to make total mixed rations in the form of block, mash and expander extruded pellets. The capacity of the block and expander extruded pellet making machine is 100 kg/h and 500 kg/h, respectively whereas the capacity of mash making (chopper-cum-grinder) unit is 200–250 kg/h.
Partnerships

The platform works with a range of national and international public and private sector partners to meet the four key research activities. In tool development, ILRI works with the National Institute for Animal Nutrition and Physiology in India, the Agricultural Transformation Agency in Ethiopia and the Hone Company in Australia. Research on increasing availability of quality biomass is undertaken in partnership with ICRISAT, CIMMYT and IRRI; the Indian Institute for Millet Research (IMR); the National Institute for Rice Research (NRRI) in India; the Ethiopian Institute of Agricultural Research (EIAR) in Ethiopia; and other key private sector players such as Advanta, Syngenta and Hatsun. Making better use of existing feed resources engages the private sector such as Fertile Green Inc. in India, EthioFeed in Ethiopia and NGOs, cooperatives and state extension services.

Publications in 2019 derived from platform research

Journal articles and invited papers


Abstracts and conference proceedings


