FARM@UP

Unlocking the future of agriculture

CONTACT DETAILS
FOR PARTNERSHIP OPPORTUNITIES

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UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Natural and Agricultural Sciences

Fakulteit Natuur- en Landbouwetenskappe
Lefapha la Disaense tša Tlhago le Temo

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WELCOME
to the future at the extraordinary
FARM@UP!

SUMMARY

Embark on a transformative journey into the future of agriculture at FARM@UP, located at the prestigious Miertjie Le Roux Experimental Farm of the University of Pretoria (UP). Strategically positioned just 40 kilometers east of Pretoria, this expansive 571ha property thrives within one of South Africa's most vibrant agricultural hubs. Through a generous donation and meticulous management by the Faculty of Natural and Agricultural Sciences (NAS), **FARM@UP** emerges as a beacon of progress. By focusing on future-fit, climate-smart agricultural research, comprehensive training, and skills development, we are poised to shape the horizon of African agriculture. Join us in this remarkable endeavour, where innovation and growth converge to redefine the possibilities of farming and sustainability.

THE CONCEPT

FARM@UP will be established as a high-tech, integrated, sustainability focused, research, training and skills development hub. It will be a working farm, for practical training of students, scholars and industry practitioners, but also a facility for joint university-industry research at scale. **FARM@UP** will rely on industry collaboration and partnerships for mutually beneficial and commercially viable endeavours.

A robust research agenda will be driven by industry and societal needs, with a view to longer term partnerships for impact. This approach is well-aligned with the University's drive towards increasing transdisciplinary and translational research.

In addition, **FARM@UP** will also be developed as a key point for partnering with various African and global partners to provide state of

the art research and teaching facilities (in Agricultural Sciences), for training researchers and stakeholders from southern Africa and Africa.

FARM@UP will focus on four broad research areas, all of which are activities in training and digital agriculture.

The design of the site will incorporate a circular economy, safer and greener by design elements to ensure the "living lab" is sustainable, while still driving excellence in teaching and research.

The development of **FARM@UP**, equipped with state-of-the-art facilities will also allow the Faculty to provide students, both undergraduate and postgraduate, with relevant and experiential curricula in various disciplines.

The property will be developed in phases. Phase 1 will develop the Research and Training Feed Mill (RTM), UP Dairy Unit, UP Broiler Unit, UP Layer Unit, UP Pork Grower Unit, UP Beef and Sheep Feedlots, and a Visitor Centre (VC) and Training Centre.

The VC will be fully equipped with an auditorium, training rooms and infrastructure to provide on-site training and workshops. On-site accommodation is part of the planned development, which would further add to the benefit of having all facilities on one facility.

The RTM will provide the anchor for research into various aspects of the upstream (crop production and additives) and downstream (animal production and nutrition) agricultural value chain.

BROAD RESEARCH AREAS

DIGITAL- AND SMART AGRICULTURE TECHNOLOGY

AGRICULTURAL VALUE CHAIN DEVELOPMENT AND LOCAL BENEFICIATION

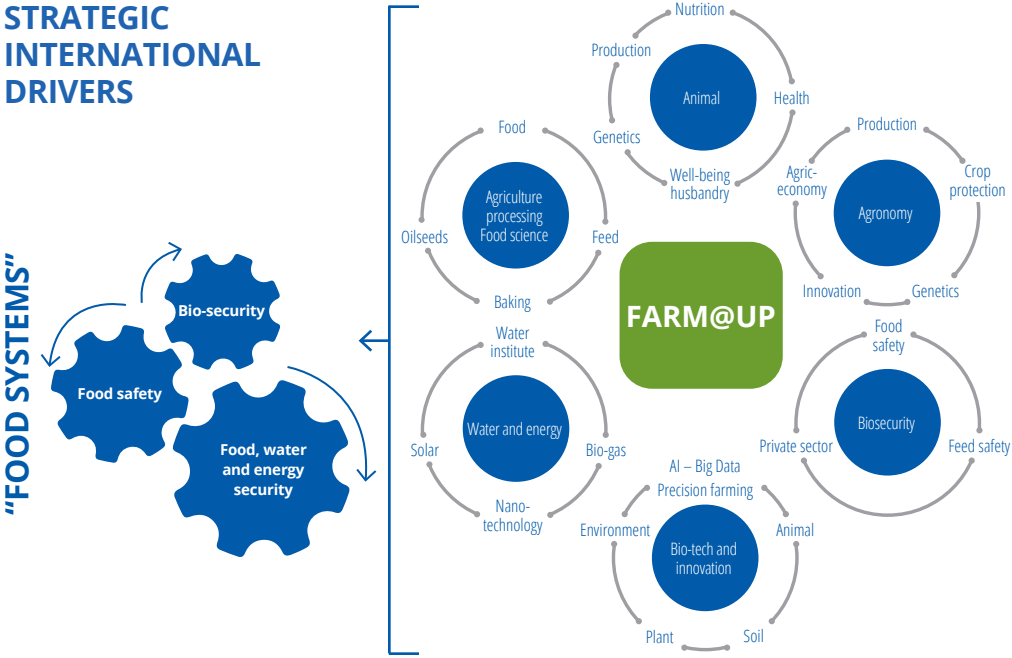
SUSTAINABLE AND LOW EMISSIONS PROTEIN PRODUCTION IN AFRICAN LANDSCAPES

CONSERVATION AGRICULTURE PRACTICES FOR AFRICAN LANDSCAPES

CIRCULAR ECONOMY PRACTICES AND PRINCIPLES IN AGRICULTURE, INCLUDING TECHNOLOGIES FOR NET ZERO AGRICULTURE

TRAINING AND SKILLS DEVELOPMENT

STRATEGIC INTERNATIONAL DRIVERS



PHASE 1: THE UP RESEARCH AND TRAINING FEED MILL (RTM) & PRODUCTION ANIMAL TRIAL FACILITIES

FARM@UP phase 1 will be hosting the Animal-Hub consisting of:

- The UP Research and Training Feed Mill (RTM);
- UP Dairy Unit;
- The UP Poultry Units (Broiler/Layer);
- The UP Pork Unit; and
- The UP Feedlot Units (Beef/Sheep).

THE UP-RTM

The RTM will be the first research and training facility dedicated to animal feed production and animal nutrition on the African continent, combining academic expertise from various departments in UP with industry partners and stakeholders, to provide cutting-edge, tailor-made research and teaching solutions. The RTM will focus on projects for the feed milling industry across Africa, in partnership with the Animal Feed Manufacturing Industry of South Africa. In addition, a robust training agenda will be presented, either through partnerships with existing international programmes and alliances, or the latest locally developed feed milling curriculum for specific needs.

UP has committed in excess of R45 million rand to build the feed mill structure, bulk services supply, security and infrastructure on the the property.

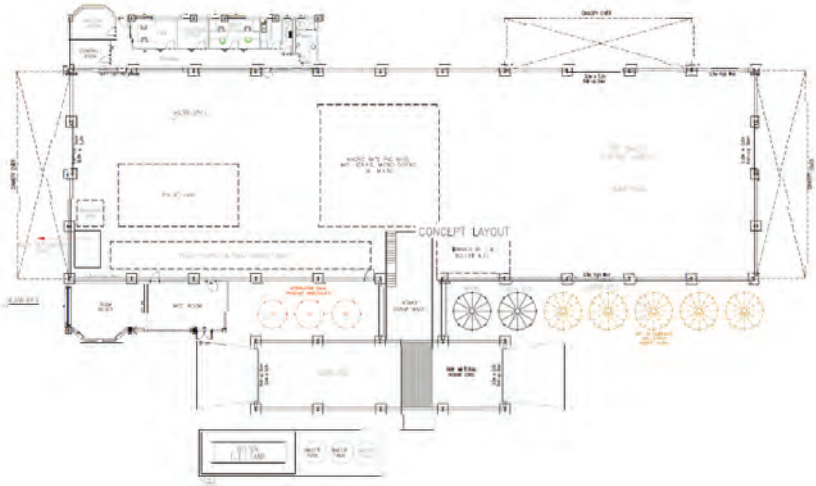
With disciplinary research and teaching expertise in animal production and animal nutrition, the Department of Animal Sciences in NAS is well positioned to develop customised research and testing solutions to meet industry needs. Strategic industry partners and stakeholders, NAS departments and other faculties at UP offer complementary skills to further support a project of this magnitude. The UP RTM is designed for feed formulation development and testing, for the full range of production animals. Industry stakeholders and relevant value chain partners will benefit from access to the latest technology, demonstration and testing facilities, training opportunities, skills transfer and access to a network of researchers, industry experts, farmer communities and other role players.

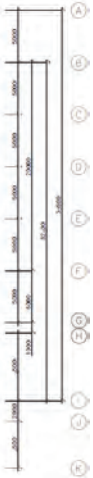
UP is inviting industry and related donors, sponsors and research partners to express interest in sponsoring the RTM, feed milling equipment, and the Animal Production Units and equipment to establish **FARM@UP**, the first of its kind on the African continent.

GENERIC CONCEPT LAYOUT

Product Output:
- Dairy
- Sheep
- Beef Feedlot
- Broiler
- Layer
- Pig

Design Output:
- 50% - RTM
- 50% - Trial Feed
- 400 - Ton/month





TRAINING AND SHORT COURSES

The RTM and all other units will have a specific focus on training and skills development. Feed plays a pivotal role in the sustainability and impact of agricultural value chains, and the training opportunities will be designed for impact. Training will be focused on a range of activities from operations, formulations and management, through experiential, on-site learning for undergraduate, postgraduate, animal science researchers, industry nutrition professionals and executives. UP has partnered locally with the Animal Feed Manufacturing Industry to provide accredited training (~50 enrolments annually). UP produces around 100 BSc Agric graduates every year, and their training includes a module on feed milling. The RTM will provide not only opportunity for practical skills development within this course, but also for similar courses in agriculture from neighbouring universities and regional partners. We foresee at least 500 attendees per year in various training programmes based at the RTM.

Here is an example of one possible framework for RTM training, to be refined in partnership with donors, sponsors, and other stakeholders.

	SCHOOLS / AG-SCHOOLS	UNDERGRADUATE STUDENTS	POSTGRADUATE STUDENTS	FARMERS	MANAGEMENT	INDUSTRY
EXHIBITION/ STUDY TOURS	✓	✓	✓	✓	✓	✓
SEMINARS	✓	✓	✓	✓	✓	✓
CERTIFICATES AND DIPLOMAS FOR SHORT COURSES (VOCATIONAL AND PRACTICAL TRAINING)				✓	✓	✓
MODULE/S, WITHIN AN UNDERGRADUATE PROGRAMME		✓	✓			✓
POSTGRADUATE LEVEL PROGRAMME (MANAGEMENT TRAINING)			✓			✓
INDUSTRY-SPECIFIC CURRICULUM TRAINING			✓		✓	✓
INDUSTRY OPERATIONAL SHORT COURSES			✓	✓	✓	✓

THE UP DAIRY-UNIT

The UP dairy herd is currently the only Holstein Friesian herd owned by a South African Tertiary Institution, making it ideal for on-site dairy research and development. The UP Dairy-Unit, currently located on the Innovation Africa@UP, will be moved to **FARM@UP**, in phase 1 of the development. The current herd size will be expanded from 80 to 200 dairy cows in milk, to ensure that research can be tested and validated in commercial settings, with a large sample size for precise answers. The **FARM@UP** site is ideal for the space requirements of the expanded heard. The RTM will be located in close proximity, thus, negating transport costs of moving large volumes of feed between campuses or from suppliers, and leveraging the obvious benefits of feed research on dairy nutrition.

UP has already committed 9.2million rands to infrastructure for the Dairy-Unit (cow hosing facilities and standard dairy equipment). The University is currently soliciting partnerships and sponsorships to develop a fully operational, large scale 200 cows-in-milk research Dairy Unit. Various opportunities for equipment, laboratories and project sponsorship exists, such as sensors, methane capture and emissions measurement facility (structure and equipment), milking equipment, milk tanks and milk cooling systems. The full list is available on request.

Given the expertise in the NAS and Veterinary Sciences faculties, studies on animal breeding, methane reduction, livestock disease management, vector borne diseases, antimicrobial resistance and other projects are currently being explored with various industries and organisations in SA, to ensure alignment of research to national and international priorities. These projects will also be supported by the multidisciplinary/transdisciplinary team at the recently launched, African Centre for Biosecurity and Disease Risk Assessment at UP's Veterinary Science Faculty.

THE UP POULTRY UNIT

The new UP Poultry unit will feature facilities adhering to the latest industry research standards to ensure industry and research and development alignment. The Unit will host:

- A 96-Pen Broiler Grower House;
- A Layer House with adjustable Pen configurations according to trial needs (fit for purpose); and
- A Poultry nutrition metabolic House.

THE UP PORK UNIT

The Pork unit will be developed as a research grower house according to the latest industry trial specifications. Due to the growing demand from industry and the limited number of official Pork trial facilities in South Africa, **FARM@UP** will be addressing these needs with a state-of-the-art Pork-Unit, available to researchers across the industry.

THE UP FEEDLOT UNIT

To cater for the red meat industry's research and development needs, the Unit will host a beef research feedlot as well as a sheep research feedlot. Both feedlots will be designed and equipped to adhere to industry standards and protocols, ensuring research results applicable for use in industry and the commercial market. Industry research trial requirements will determine the trial sizes and layout.

PHASE 2 AND BEYOND

The second and beyond phases of the development will include (not limited to):

- Livestock health, livestock genetics, wellbeing and husbandry solutions
- Agronomy
- Bio-security
- Bio-tech and innovation
- Water and energy
- Agricultural processing and food safety

SUMMARY OF PROJECT PHASES

PHASE 1A

Research and Training Feed Mill (RTM)

- Core feed mill/nutrition research
- Direct link to animal performance

PHASE 1B

The UP Dairy

- **TMR**
- **Slurry – biogas**
- **Markers**

PHASE 1C

Larger scale production trials

- Broilers
- Layers
- Pork grower houses
- Expansion on pork (later)
- Proper-sized feedlot for commercial research

PHASE 1D

High-tech, small footprint animal performance research on:

- Metabolism
- Nutrition
- Emissions

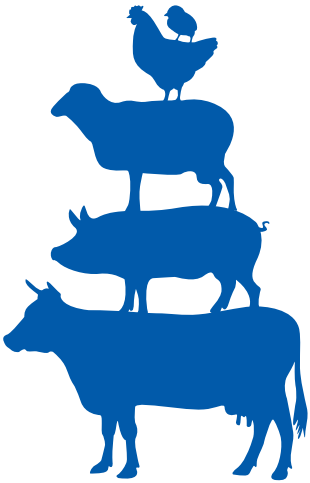
[chicken | pork | sheep | cattle]

EQUIPMENT REQUIRED

The core manufacturing equipment for the RTM was identified by a panel of industry experts and stakeholders, for the production, research and training processes at **FARM@UP**, with the specific purpose of producing animal feed in a research and training environment.

As the anchor facility, the RTM will produce feed for all animal production and animal nutrition units. Therefore, equipment which will be required for Phase 1 would be applicable to the:

- The UP Research and Training Feed Mill (RTM);
- UP Dairy Unit;
- The UP Poultry Unit;
- The UP Pork Unit; and
- The UP Feedlot Unit.



For more detailed information on equipment required or any specific unit/s, the NAS Dean or the **FARM@UP**'s Project Developer - **Mr De Wet Boshoff** can be contacted at **dewet@agserv.co.za**

HOW TO GET INVOLVED

Getting on board and becoming involved in the development of FARM@UP, would be handled according to UP policy and regulations, which prescribe how to become a:

- **UP DONOR**; or a
- **UP SPONSOR**.

UP DONOR

Become a UP donor by making a contribution or donation to the cause of the project, or a specific part of the project. Donors will have the benefit of receiving a SARS 18A tax certificate, which makes this contribution / donation tax deductible.

UP SPONSOR

Becoming a UP sponsor is seen as an opportunity to be able to benefit from marketing and promotion of a relevant company, industry or individual to obtain the visibility and exposure according to the sponsorship ensuring a fair and transparent return of investment (ROI) to the ponsor, be it a relevant individual, company or industry.

Both types of contributions will receive recognition, as partners, through signage on the* FARM@UP *campus and relevant* FARM@UP *marketing material.

SPONSOR/PARTNER BENEFITS

- Exposure
- Enabling skills development
- Networks
- Empowering
- Naming rights

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