

AGRICULTURAL RESEARCH COUNCIL

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NEWSLETTER

Coordinating and Promoting Agricultural Research and Development in Zimbabwe

ISSUE 01

ARC

Organogram

Board

Composition

**PURPOSE OF
RESEARCH IN
AGRICULTURE**





AGRICULTURAL
RESEARCH
COUNCIL

**Coordinating and Promoting Agricultural
Research and Development in Zimbabwe**

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Purpose of research in agriculture

Research in agriculture can be scientific, relating to the very many disciplinary areas applying to the production of food and non-food products from plants and animals. It can also be both process- and systems-based in relation to the provision of services in agriculture.

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Premise of Agricultural Research

As implied in all other fields of endeavour, research in agriculture refers to the diligent, structured, systematic, objective examination or observation of phenomena for the purpose of learning new facts, or testing the application of theories to known facts. Research is used to create knowledge, which can be applied to finding solutions to problems, explain phenomena of varied complexity or to rationally evaluate options of convenience in tool and method design and approaches in addressing situations.

...research aims to generate technologies and knowledge that can be applied to improve process efficiencies and product competitiveness.

Research in agriculture can be scientific, relating to the very many disciplinary areas applying to the production of food and non-food products from plants and animals. It can also be both process- and systems-based in relation to the provision of services in agriculture. Research can also be applied in policy areas to evaluate effects of agricultural value chain activities on socio-economic outcomes. It can also be operational in nature wherein it seeks to evaluate outcomes of a combination of factors affecting agricultural services.

The bottom line is that research expresses an intention to understand situations better as a step towards influencing desirable outcomes, chief among them food and nutritional security, enhancements of the agribusiness sector performance, particularly the manufacturing industries, employment, income earnings and market access. In general, research aims to generate technologies and knowledge that can be applied to improve process efficiencies and product competitiveness.

Understanding that the divide between the developing and the developed worlds are about the



pace of generation, adoption and use of knowledge and technologies, research in agriculture is no doubt a necessary tool in the advancement of the sector as well as in national development. Achieving a higher quality of life can definitely result from agricultural research.

Drivers of agricultural research

Typically, agricultural research is necessitated by a need to improve production levels, the efficiency of production systems under different ecological, socio-economic and technological levels and inputs. It also addresses aspects to improve product competitiveness at internal and export markets as well as investigating how to “green” agricultural production for environmental sustainability.

Some research aspects commonly addressed include suitability of breeds and varieties in given ecological conditions and management systems, the extent to which products can gain favour from buyers in terms of quality and safety in order to beat competition at marketing. With cutting edge science, research can also be applied to create new products to increase product ranges, function and diversity. Research can therefore be basic, applied or adaptive. It can also be strategic or development oriented. The different types and kinds of research can be run synergistically or in tandem to address given interests. Collaborative partnerships are particularly advantageous in addressing outcomes more efficiently.

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On the whole, Research is employed to improve agricultural performance at farm, sector or national level and can applied at any point in supply chains. At national level, research is exploited as a public good towards socio-economic objectives for human well-being and as a lifeline to many manufacturing sector industries.

With inclusivity measures, research based changes to value chains also result in job creation, incomes and livelihoods resilience, hence address economic equity. Research can also be harnessed to investigate and provide solutions towards containing and arresting agriculture’s negative externalities to public health and the integrity of the natural resource environment. These spill-over effects are of importance in addressing marketing conditions and demands under globalisation.

Knowledge and technology sensitive efficiency enhancements in the production environment which benefit from research, have positive spillover effects on the manufacturing sector, thereby growing the

national economy through exports, while absorbing the labour force. Industry in turn employs research as an important tool in reducing costs and enhancing the competitiveness of products for market access.

Research itself comes at a cost sometimes with no guarantees of the usefulness of its results, nor the opportunity cost of the time it will take to provide reasonable answers to problems being addressed. While the intention is good, and its case compelling, fiscal provisions for public sector research need to be prioritised. When local research remains vibrant, the negative effects associated with intellectual property regimes on imported technologies can be obviated.





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Where do research opportunities in agriculture arise?

Researchable opportunities can arise at any point in an agricultural supply or value chain of any commodity beginning at the level of inputs, to the production of primary goods, their harvest, processing, storage and marketing. Associated factors that include environmental factors including water, soils, ecosystems, weather, pest and disease occurrence/susceptibility and their control, the operational environment of agricultural production including anthropological factors, technological and infrastructural factors such as mechanisation, irrigation, post-harvest practices, marketing, consumer demands and preferences, waste management practices and requirements, can each be subject for research.

Where technologies or knowledge of interest are generated elsewhere externally, it is necessary to validate them and then investigate how they can be adapted locally for possible adoption based on evidence supported by locally relevant data and information obtained through research.

The high cost normally attending research always calls for strong justification, accountability and an assurance that usable results are taken through stages to allow their uptake by beneficiaries with facilitation of bridging institutions, to ensure returns on research investments.

What are the key characteristics and qualities of research in agriculture?

In practice, formal structured research follows norms which begin with observations and identification of gaps in knowledge or constraints in performance or function. This is followed by clear expression of a hypothesis accompanied by description of methods which the researcher proposes to test the proposed hypothesis.

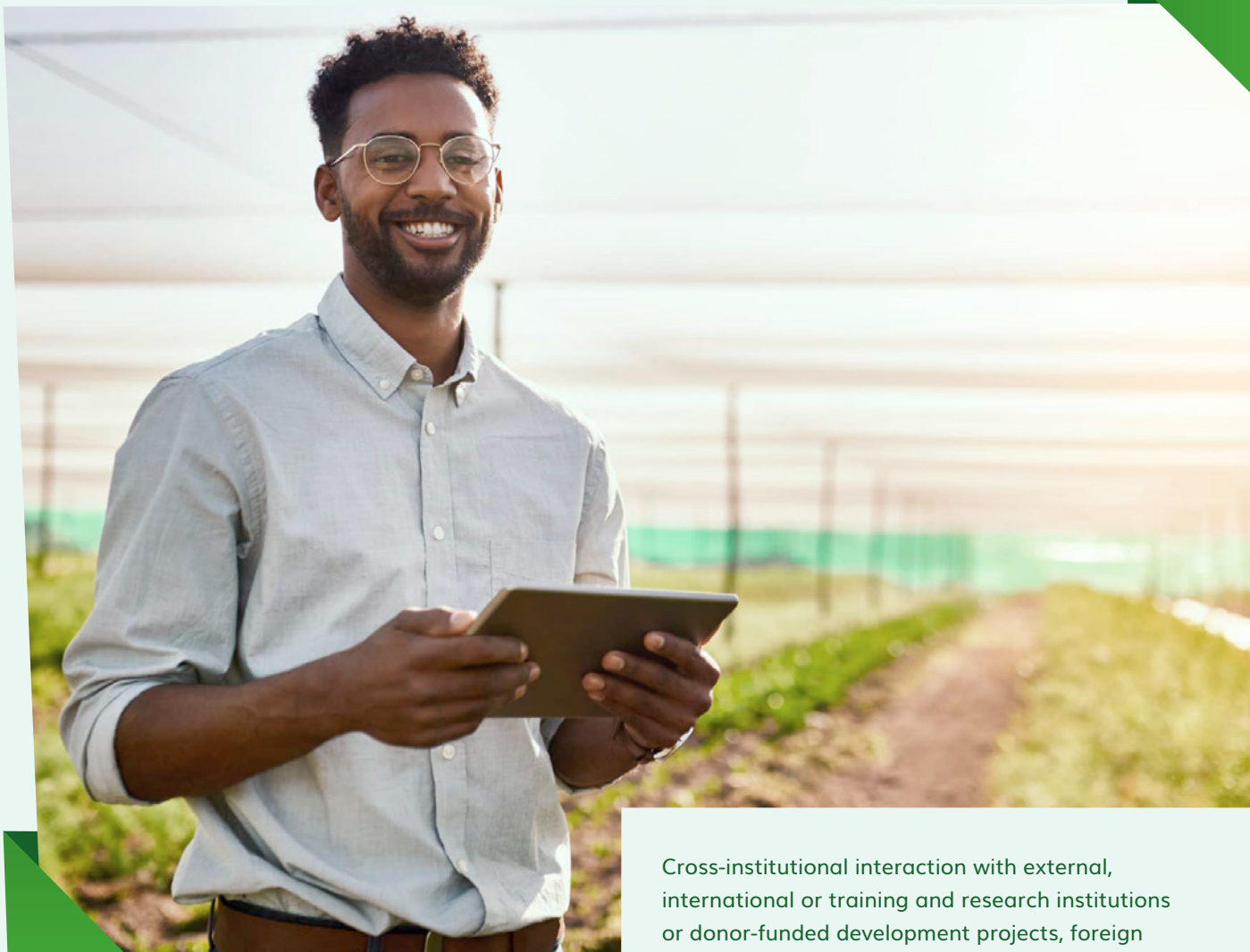
The methods given should be unambiguously described and factually justified in writing or based

on proven principles, which are open to replication by anyone who may wish to repeat them.

In science, unless the point of the research itself is to validate a method, the methods must have been previously validated and published in refereed journals. All this is to ensure transparency as well as the validity of theories, designs of studies, findings and claims, which must be open to peer scrutiny by anyone in the global researcher community. Refereed documentation and presentation of theories, proposals, methods and results to peers are key practices which define the high expectations on a researcher's ethical values and conduct. These values must be evident and demonstrable as part of the due diligence of scientific rigour exercised to ensure validity and transparency of claims made through research.

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Researchers are therefore a brand of professionals who must be of high integrity and repute so that their actions can normally be presumed to be above board. The moral conduct of researchers usually comes with training under mentorship, but will more likely be developed in people with innate attributes of high moral standing. This is reinforced and nurtured through on-the-job seasoned mentoring and post-graduate training. This characteristic is therefore bound to be present in lower than a majority of science and technical professionals. Research expertise will normally follow different disciplinary strengths of individuals.



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Cross-institutional interaction with external, international or training and research institutions or donor-funded development projects, foreign investments or new export trade opportunities normally bring in new learnings and technology transfer opportunities. Such opportunities are healthy in developing researchers and keeping them motivated.

Because such researcher traits are relatively uncommon, this category of human resource in research organisations is relatively rare, but one which is the biggest asset as it drives itself based on self-regulation, club type peer relations which transcend national and institutional boundaries in quest for excellence. It needs to be continually nurtured and guarded for retention as it takes time to mature but can easily be lost. Institutions responsible for research will therefore normally be expected to take pains to ensure succession in given disciplines in order the engender sustainability in retaining expert status.

The ARC is the key convenor and connector of the wide stakeholder ship of agricultural research.



What key needs do researchers have?

Scientific and technical research will in particular, normally have certain specific requirements. Some may require to be carried out in workshops or laboratories using technical equipment subject to changes due to evolution of technologies. The technology environment has been advancing rather rapidly in recent decades with inputs in informatics, electronics and molecular biology with implications on researcher skills and infrastructure to become efficient, relevant and comparable with outputs in other like research exercises.

Other research will tend to be applied on the agricultural production environment or operational systems, in the field requiring cooperation and learnings by participating beneficiaries.

A number of support disciplines normally conduct desktop research based on reliable data collection systems. These are now benefitting greatly from use of big data and geospatial computerised management and analytical technologies.

What purpose does the ARC serve?

The ARC is an apex research body established by the Agricultural Research Act to coordinate research in agriculture. Its role is to keep the policy principals as the key client, advised on knowledge and technology interventions, management, development and improvement in response to matters of public interest. As there are numerous players in agricultural research ranging from public sector institutions, private sector institutions educational and training establishments and some development and investment partners with interests in research, one of the key roles of the ARC is to keep these co-ordinated in order to maximise benefits from research opportunities by promoting collaboration, while minimising unnecessary wastage and duplication of efforts. In this vantage position the ARC is privileged to have a bird's eye view on technologies and knowledge gaps, as well as research risks potentially occurring in some areas of emerging technologies.

The ARC therefore is the key convenor and connector of the wide stakeholder ship of agricultural research. It is also a key catalyst and facilitator and plays a central role as a repository of information that has been digested and analysed, thereby becoming a shop window for national information on agricultural research and related issues. To play this role well, it must be well networked locally, regionally and internationally to enable it to play an advocacy role shaping and influencing the generation of knowledge and technology for exploitation of the agricultural sector.

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The ARC has a key role in ensuring that especially the sum of investments in research is an effective tool in efficiency building through harnessing relevant technologies and knowledge as well as promoting a learning culture by agricultural value chains towards responsive transformation.

Some key results of the ARC's responsibility

- Creation and maintenance of healthy collegial linkages among partners in the NARS which translate into synergistic communication, consultation and collaboration

- A healthy and progressive knowledge management system about the array of technologies applicable in the agricultural landscape with possibilities of being exploited locally and appraisals on them

- Vibrancy and a shared sense of credible high quality research among agricultural research practitioners

- A sense of the performance of value chains and relations of this with researchable areas and knowledge and technology transfer nodes

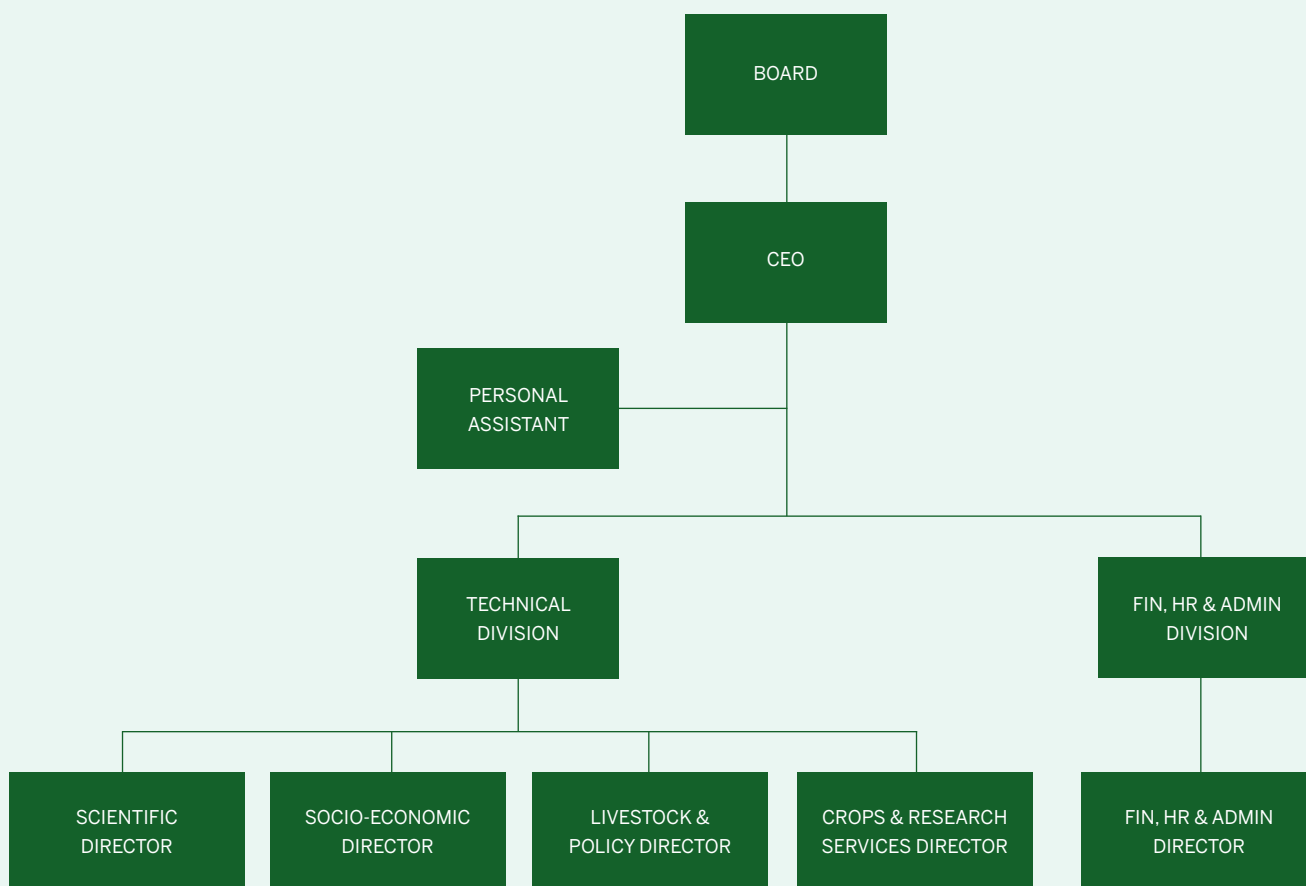
- Action on Agricultural policy gaps for agricultural research

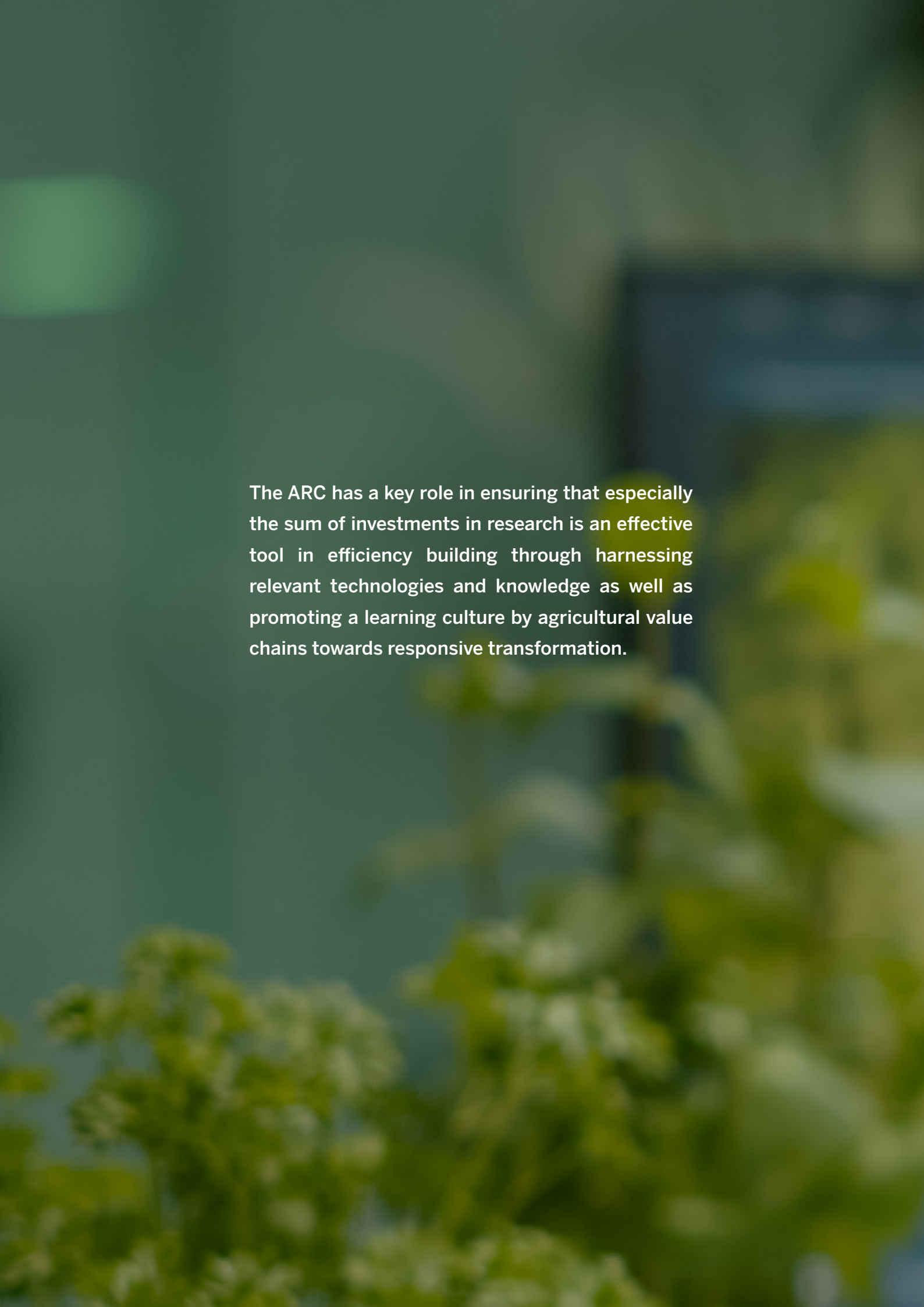
- **Information on:**
 - Institutions contributing to national agricultural research capacity building, statistics their disciplinary strengths, needs and output levels.
 - Technology and knowledge bridging institutions
 - Information about key Agricultural Research infrastructure that could be strategic for certain types of research work and gaps that exist from time to time
 - Learnings and learning opportunities presenting to stakeholders
 - Expertise databases



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ARC Organogram





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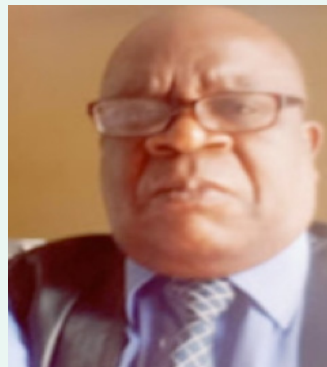
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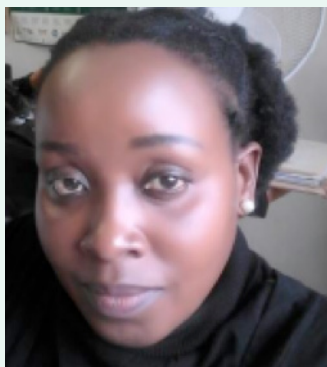
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