

Is South Africa spending sufficiently on agricultural research?

- Technological improvement is a primary catalyst for the growth of the South African agricultural sector.¹ Thus, South Africa must continue to spend money on research and development to support the long-term growth of the agricultural sector. However, in recent years, the country seems to be spending less on research, which is worrying, especially during increased climate change risks and the need for even greater spending on research.
- Consider the work done jointly by the University of Pretoria and the Agricultural Research Council (ARC) for the international Agricultural Science and Technology Indicators in 2014, which estimated that South Africa in that year spent about R2,5 billion on agricultural research – by public, university and private sector agencies.
- The most recent government appropriation reports reported that the Department of Agriculture transfers an annual total of R1 billion to the Agricultural Research Council to operate its various programmes to support the agricultural sector. This is roughly 1% of the total budget for the Department of Agriculture, Land Reform and Rural Development.
- Thus, one could raise questions about whether this is enough and in line with global norms. We know from previous work that South Africa's agricultural research spend as a share of the budget and value of agricultural output is the highest in Africa, with only Nigeria coming close. There, of course, questions about the efficiency of the spending on agricultural research, which would involve enquiring how much goes to overheads and other non-research expenditures and then, more fundamentally, the ARC focus on relevant research focus areas, did it appoint the best scientists and what is the state of its laboratories, experimental farms and general aspects of maintenance and upgrading of equipment. This requires detailed studies and detailed evaluation reports to understand whether we are getting value for our taxpayers' money.
- Over the years, role players in the agricultural industry realized that the funding to the ARC and the delivery of critical technical improvements have been insufficient and slow. Therefore, the various commodity organizations have a question: How much do these industry bodies allocate to agricultural research? From the National Agricultural Marketing Council's 2023 report on Statutory Levies in the agricultural industry, we learned that these organizations use R460 million (or 45%) of the R1,022 billion levy income to fund specific research programmes.

¹ Sihlobo, W. 2024. 30 Years into democracy: How has South Africa's agricultural sector performed? Available here: <https://www.econ3x3.org/article/30-years-democracy-how-has-south-africas-agricultural-sector-performed>

- Table I below provides a detailed breakdown and comparison of the research spending by the top 12 industries in South African agriculture. These 12 commodities contribute a significant share to South Africa's total gross output value in 2023. Poultry, sugarcane and maize industries fund their research activity from different sources.

Table I: Research expenditure by the 15 largest commodity groups in South African agriculture

Commodity	Production value 2023 ('000)	Levy income 2023 ('000)	LEVY as % of production value	Research spend ('000)	Research spend as % of production value	Research spend as % of levy
Red meat	58 109 307	52 222	0,1%	6 888	0,01%	13%
Citrus	38 922 033	262 925	0,7%	156 148	0,40%	59%
Dairy	27 547 757	61 294	0,2%	3 309	0,01%	5%
Soybeans	23 214 779	86 822	0,4%	68 250	0,29%	79%
Winter cereals	24 912 224	73 244	0,3%	57 230	0,23%	78%
Eggs	13 428 161	9 265	0,1%	91	0,00%	1%
Table grapes	11 805 000	43 413	0,4%	10 202	0,09%	23%
Potatoes	11 091 251	51 408	0,5%	14 588	0,13%	28%
Pork	10 450 381	51 360	0,5%	1 873	0,02%	4%
Deciduous fruit	10 071 415	168 962	1,7%	86 536	0,86%	51%
Viticulture (wine)	6 287 853	123 741	2,0%	13 289	0,21%	11%
Nuts	6 287 853	65 448	1,0%	35 838	0,57%	55%

Source: NAMC, DoA, and various sources

Note: We could not analyse the research expenditure for maize, poultry and sugar as this is funded outside the levy proceeds. Grain SA, does however provide R11 million funding from their voluntary levy/membership fees to support research in all the grains.

- Table I illustrates some stark realities about how the various commodity organizations focus on research. The R156 million allocation to research by the Citrus Industry via Citrus Research International (CRI) shows the industry's commitment to research. The growth in the citrus industry in terms of area planted, production efficiency (volume/tree), combatting diseases, and how to deal with the strict demands from export markets have been the backbone of a well-funded, focused, and successful research programme.
- This is a substantive research activity implemented mainly by universities and their scientists. The deciduous fruit, table grape, wine and nut industries follow with similarly designed and funded programmes. Soybeans and wheat industries also spend substantive amounts of the levy income on research. The soybean industry has benefited from decades of funding by the Protein Trust as well as from imported technology in seed genetics and cultivation improvements.

- More revealing is the column in the table that shows research funding by the industry expressed as a share of total gross value. The deciduous fruit industry spends almost 1% of Gross Value on research, followed by Citrus with 0.4%.
- It is worrying that the Red Meat Industry only allocates R6,8 million to research – only about 0.01% of the industry's total value. Given this industry's many questions, issues and problems, one would expect a much bigger research fund. Just one decent research experiment would take about half of the budget. If one takes the example of citrus fruit and spend at least 0.5% of the value of the industry on research, then they should have about **R233 million** available for red meat research. This is massive and substantially more than the current R6,8 million and will be a serious programme that could stimulate the much-needed growth in the industry. It is time for a much-needed discussion in the red meat industry.
- Overall, we deduce from this data that South Africa needs to review its budget allocations for research and do more to ensure increased spending. Climate change has brought new diseases and various challenges for agriculture. There is also a need for better production methods and breeding programmes, all of which will require careful and well-funded research. This is the responsibility of both the government and the private sector.

We are grateful for the insights and contribution in this note of Professor Johann Kirsten, Director of the Bureau for Economic Research at Stellenbosch University.