Addressing contemporary challenges in the South African Agricultural Economy

AEASA

55th Annual Conference

Elangeni Hotel, Durban
19 - 21 September 2017
National Agricultural Marketing Council

About NAMC
The National Agricultural Marketing Council was established in terms of the MAP Act No. 47 of 1996, as amended by Act No 59 of 1997 and Act No. 52 of 2001. We provide strategic advice to the Minister of Agriculture, Forestry and Fisheries on the marketing of agricultural products.

Vision
Strategic positioning of agriculture in a dynamic global market.

Mission
To provide agricultural marketing advisory services to key stakeholders in support of a vibrant agricultural marketing system in South Africa.

Strategic Objectives
The work of the NAMC is aligned to the four strategic objectives as set out in Section 2 of the MAP Act, 1996 namely;

• to increase market access for all market participants;
• to promote the efficiency of the marketing of agricultural products;
• to optimise export earnings from agricultural products; and
• to enhance the viability of the agricultural sector.

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Postal address: NAMC, Private Bag X 935, Pretoria, 0001
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Dear Guests, Colleagues, and Friends.

On behalf of the Management Committee of the Agricultural Economics Association of South Africa (AEASA) and the Local Organising Committee (LOC) for the 2017 AEASA Conference, it is my pleasure to welcome you to the 55th Annual Conference of AEASA in Durban. Durban (or eThekwini, its Zulu name) is a diverse, multi-cultural city where Africa meets East meets West in a kaleidoscopic and unique mix. Influences from Africa, Asia and Europe have created a vibrant cityscape that lives up to its branding as South Africa’s playground. We are proud once again to host an AEASA Conference in Durban.

The theme of this year’s Conference is “Addressing Contemporary Challenges in the South African Agricultural Economy”. The Conference will be addressed by several outstanding invited speakers, all of whom are leaders in their respective fields. We look forward to their contributions. We are especially privileged to have Prof Awudu Abdulai as this year’s Simon Brand Memorial Lecturer. A wide range of contributed papers and poster abstracts submitted by our local researchers, and in particular by the younger members of our community, have been accepted for presentation at the Conference. The Conference also includes four research symposia on various themes and a panel discussion on growing the agricultural sector of South Africa. We trust that every delegate will find value in the academic programme of the Conference.

A huge thank you to our sponsors for their generous support - without them this meeting would not be possible. We are very grateful for their contributions to #ConferenceFeesMustFall. We also extend our sincere thanks to the organisations and people facilitating the research symposia, the members of our panel discussion, those who submitted contributed papers and poster abstracts, and the reviewers who provided opinions on the various submissions received by the Conference. Siyabonga!

We are thrilled that more than 275 delegates have registered for this Conference. The social programme of the Conference includes a welcoming function, a braai at the Durban Ski Boat Club and a Gala Dinner. We hope that you will attend these functions and use the time to connect with old and new friends and colleagues.

Enjoy the Conference!

Dr Stuart Ferrer
Conference Chair

Local Organising Committee

Dr Stuart Ferrer Chairperson, UKZN
Dr Lloyd Baiyegunhi UKZN
Mrs Christine Cuenod Lima Rural Development Foundation
Miss Thembelihle Khanyile KZN DARD
Miss Jabulile Mthembu KZN DARD
Dr Maxwell Mudhara UKZN
Prof Gerald Ortmann UKZN
Mr Duncan Stewart Lima Rural Development Foundation
Prof Edilegnaw Wale UKZN
MANDATE
The mandate of the Department is to advance Agriculture and Rural Development in the Province of KwaZulu Natal with a special focus on emerging farmers, communities, commercialization of agriculture and sustainable rural communities, addressing the triple challenges of poverty, inequality and unemployment.

VISION
An inclusive, sustainable and radically transformed agricultural sector that builds thriving communities in balance with nature.

MISSION
To advance sound agricultural practices that stimulates comprehensive economic growth, food security and advancement of rural communities.

STRATEGIC GOALS AND OBJECTIVES

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<th>STRATEGIC GOALS</th>
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<td>1. Corporate governance and integrated service delivery</td>
<td>Provision of sound, responsive and transformed corporate and financial management systems.</td>
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<td>2. Develop and promote the agriculture potential in KwaZulu-Natal.</td>
<td>Promotion of optimal agricultural production for improved economic development and job creation</td>
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<td>3. Sustainable natural environmental management</td>
<td>Promotion of natural resources conservation for improved agricultural production.</td>
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<td>4. Promote sustainable rural livelihoods</td>
<td>Improve access to services in rural areas through coordination.</td>
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Contact Details
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Tel: 033 355 9100/Fax: 033 355 9122
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Email: callcentre.agriculture@kzndard.gov.za
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Prof Awudu Abdulai, a citizen of Ghana, is Professor of Food Economics and Food Policy, and Head of Department of Food Economics and Consumption Studies at the University of Kiel, Germany. He holds a BSc from the Kwame Nkrumah University of Science and Technology in Kumasi, Ghana and MSc and PhD from the Swiss Federal Institute of Technology, Zurich (ETH-Zurich). Prior to joining the faculty at the University of Kiel in 2004, he taught at the ETH-Zurich and also held visiting positions at the Departments of Economics at Yale University and Iowa State University, as well International Food Policy Research Institute, Washington, DC. He spent 2010-2011 as Cargill Visiting Professor at the Center for Food Security and the Environment at Stanford University. In 2010 he was named a Distinguished Fellow of the African Association of Agricultural Economists. Currently, he is Chair of the Africa Section of the Agricultural and Applied Economics Association. Awudu served as Associate Editor for the American Journal of Agricultural Economics from 2012-2015. He is currently Co-Editor-in-Chief of Agricultural Economics and member of the Editorial Advisory Board of Food Policy. He will be presenting the Simon Brand Memorial Address on 19 September 2017.

Prof Haroon Bhorat is Professor of Economics and Director of the Development Policy Research Unit at the University of Cape Town. His research interests cover labour economics, poverty and income distribution.

He has co-edited four books and published more than 150 academic journal articles, book chapters and working papers. Haroon has his PhD in Economics through Stellenbosch University in South Africa. He also studied at the Massachusetts Institute of Technology and was a Cornell University research fellow. Haroon holds the highly prestigious National Research Chair under the theme of Economic Growth, Poverty and Inequality: Exploring the Interactions for South Africa. Haroon is a Non-resident Senior Fellow at the Honorary Research Fellow at the Human Sciences Council (HSRC), and a member of the Board of the UNU World Institute for Development Economics Research (UNU-WIDER). He sits on the World Bank’s Advisory Board of the Commission on Global Poverty as well as the World Bank Group’s Program Committee of the 2017 International Economic Association (IEA) World Congress. He is a member of the Advisory Committee of the joint United Nations and World Bank Policy Study on the role of Development in the Prevention of Violent Conflict. He is also a member of the UN/WHO’s High Level Commission on Health Employment and Economic Growth. Haroon previously served on the UN Commission on Legal Empowerment of the Poor (LEP), and was Head of Research for the UN’s High-Level Panel on the Post-2015 Development Agenda.

HARoon has undertaken extensive work for several South African government departments – most notably the Department of Labour, the Presidency and the National Treasury. He is an Advisor on the South African Parliament’s High Level Panel on Acceleration of Change and Transformation, and was an economic advisor to two past Ministers of Finance, and previous Presidents Thabo Mbeki and Kgalema Motlanthe, formally serving on the Presidential Economic Advisory Panel.
Prof James Blignaut is an environmental resource economist who started his career in 1991 at the South African Reserve Bank. In 1994 he joined a community-based NGO near Ulundi in KwaZulu-Natal, Zisize, as general manager. After obtaining his doctoral degree in 1995 with a thesis entitled Environmental accounting in South Africa he joined the Department of Economics, University of Pretoria on 1 January 1996. Since 2005 he has been on a contract to the Department of Economics, and also a free-lance consultant and researcher. Blignaut focusses on the economics of food, water and energy within the context of the restoration of degraded ecosystems. This includes research into aspects such as conservation agriculture, and the impacts invasive alien plants on ecosystem services, food and water. This research focus has also taken him to investigate the possible implications of, among others, climate change, at a municipal, provincial and national level, as well as at a sector level, such as agriculture and water. He has authored and co-authored more than a 100 papers in local and international peer-reviewed accredited journals, 30 chapters in books, and co-edited three books. He is the former editor-in-chief of the South African Journal of Economic and Management Sciences, and is a current editor of Water Resources and Economics and former editor of Energy Economics, Conservation Letters, Journal of Arid Environments and the South African Journal of Wildlife Research.

Dr Peter Jacobs is a Research Director in the Economic Performance and Development Research Programme (EPD). He holds a PhD in Economics from Fordham University (New York) and a C1 researcher rating from the National Research Foundation (NRF). Before joining the HSRC in 2007, he was the Head of Department in Economics at the University of the Western Cape (UWC). He also worked on land reform policy issues at the Institute for Poverty, Land and Agrarian Studies (PLAAS) at UWC. In 2015 he won the HSRC capacity development award and in 2016 received the prestigious Fulbright Research grant to complete a new book manuscript at Johns Hopkins University in Baltimore. His areas of research interest include: the economics of agrarian change and rural socio-economic transitions, with special emphasis on land reform and small-scale farming, social dynamics of rural innovation, agro-food systems and food and nutrition security. Dr Jacobs’ publication record spans the authoring and co-authoring of more than 90 conference presentations, journal articles and book chapters on development, gender, agricultural markets, rural innovation, food and nutrition security and pro-poor budgeting. He has co-edited special issues of well-known journals such as Agrekon (on Household food security status) and Development Southern Africa (on Sustainable Rural Development in South Africa).

Dr Peter Johnston is a climate scientist in the Climate Systems Analysis Group at the University of Cape Town. His research focuses on the applications and impacts of climate variability and change on various user sectors. He specialises in agriculture and water related activities with special emphasis on vulnerability and adaptation options. His interests and involvements have taken him to many African countries to learn from and contribute to other water and agricultural adaptive practices to climate change and variability. Current research includes the application of models to determine the financial impacts and sustainable adaptation options for agricultural under climate change scenarios for commercial and small scale farmers. His recent work is focused on the climate risks and decision making time frames associated with agriculture and food security for Western Cape Department of Agriculture, and the impact of climate change on the financial vulnerability of maize, grape, wheat and citrus farmers in South Africa. He is PI of a current AAUN Proposal Development titled “Agro-diverse farming systems in Africa: potential for improving Food and Nutritional Security in the context of climate variability and change” involving parallel case studies in South Africa, Malawi, Kenya, Nigeria and Western Australia. He has numerous publications and co-authored the South African chapter of Southern African Agriculture and Climate Change, IPPRI, 2013).
New ideas in support of good governance for land reform communal landholding institutions

Organisers: LIMA (Lima Rural Development Foundation) & SASA (South African Sugar Association)

The land restitution programme is a key instrument of governments land reform programme aimed at providing redress to those persons and communities that were dispossessed of their land through legislatives practices after 1913.

Since the inception of the restitution programme in 1994, the Land Claims Commission has restored 3 227 984 hectares at a cost of R19,9 billion. The majority are rural settlements, where claimant’s communities has taken ownership of the land in the form of a communal property institution, namely, as Trust or a Communal Property Association.

It is well documented that these communal property institutions has been confronted by several challenges which has impacted negatively on the stability of the claimant communities, and the associated business enterprises on the land. A number of organisations and individuals have embarked on various initiatives to support good governance.

The workshop is aimed at sharing some of the learning experiences from these initiatives. Equally important the workshop will also serve as an opportunity to share “new thinking” and “emerging innovative models” that can contribute to good governance.

Contemporary issues affecting South Africa’s agricultural trade

Organiser: NAMC (National Agricultural Marketing Council)

South Africa’s agricultural trade has been growing over the years with a positive trade balance of R36 billion in 2016. The exports amounted to R128 billion (2016) with a significant growth of 14%, which is better than 6.6% growth realised in the previous year, 2015. The previous year’s slower export growth was mainly attributed to the effects of drought that has affected the agricultural supply (production). South Africa’s trade environment has been evolving over time including, among others, the completion of the Economic Partnership Agreement (EPA) and subsequent talks aimed at ensuring that South Africa does not lose its AGOA status. More recently has been the new administration in USA and exiting of Britain from the European Union (EU) - Brexit.

Using the policy tools available South Africa introduced the dumping duty on poultry imports from a number of countries of the EU (such as Netherlands) and the trade-off that had to be developed in keeping the AGOA status with USA.

In light these developments, the workshop will focus on the contemporary issues affecting South Africa’s agricultural trade and the selected one include export promotion, regional value chains and implication of BREXIT and AGOA (new Trump Administration). NAMC Research Symposium.
Agricultural water issues and entrepreneurship in South Africa

Organiser: WRC (Water Research Commission)

The current reality in South Africa is that water resources are limited. The focus must therefore be on productive use of available water for agriculture. It is estimated that 62% of rainwater is used for natural grazing and woodlands; 12% for rain-fed croplands; and 2.4% for irrigation (Bennie et al., 1998). Although about 56% of surface and groundwater is used for irrigation (Backeberg, 2003), there is evidence that most smallholder irrigation schemes are operating below potential (Van Averbeke et al., 2011). Given the semi-arid conditions and expected impacts of climate change, more emphasis must be given to increased productivity of water use under irrigation. It will require higher crop production, better product quality and negotiating higher prices for improved operating margins (WRC, 2013). In this context it is noteworthy that according to the programme of action announced by the Presidency during 2010, it is anticipated that Output 4 will deliver improved economic livelihoods. This includes a rising percentage of small-scale farmers producing for market sales and an increased number of jobs in agro-processing. Furthermore, the National Development Plan (2011) forecasts increased production under irrigation and creation of new jobs by 2030. Practically achievable targets for expansion of irrigation at provincial level have been stated in the Irrigation Strategy for South Africa by the Department of Agriculture, Forestry and Fisheries (2015).

The reasonable argument has been made (Sunter, 2011) that for a balanced economy, both an outward and inward focus is essential. The last mentioned involves support for establishment of new small businesses and related job creation. In this regard priority attention should therefore be given to encouraging existing and new small farming businesses to be undertaken on irrigation schemes. This in turn requires that an assessment be made of goals and aspirations of current and potential farmers, in particular women and unemployed youth, to improve economic performance of farming enterprises (WRC, 2013). In this process, due recognition should be given to the wealth “at the bottom of the pyramid” (Prahalad, 2005). “Pull factors” such as incentives linked to secure land tenure and water use rights with empowerment through knowledge and practical skills are mostly neglected. However, it is well known that economic development is driven by innovations of entrepreneurs (Schumpeter, 1934). Entrepreneurial activity, i.e. the willingness to do something new or different that involves the risk of failure, must be distinguished from business calculations of managers (Schumpeter, 1950). In addition to human capital (e.g. leadership and initiative) and social capital (e.g. operating on trust relationships), attention must be given to psychological capital (Luthans et al., 2004). Positive psychological capital consist of variables such as confidence, hope, optimism and resilience of farmers as entrepreneurs. Necessity or opportunity can be the trigger for people to become entrepreneurs. Reasons have also been given for how to avoid struggling as a start-up business and what is needed to become a successful entrepreneur (Maluleke, 2016). Therefore it is important to investigate the potential for entrepreneurial driven small farming businesses in the food value chain.

The WRC has funded research projects and published reports on entrepreneurial development paths of households and enterprises on smallholder irrigation schemes and homestead food gardens in surrounding rural villages. This research work was done in partnership with the Umhlaba Consulting Group/Tshwane University of Technology, University of Fort Hare and University of KwaZulu-Natal. During the symposium presentations will be given and discussions held on research findings in Limpopo, Eastern Cape and KwaZulu-Natal Provinces as well as implications for smallholder crop farming and homestead food gardening as entrepreneurial small businesses in South Africa.
Agricultural production and investment within the context of insecure communal land tenure

Organiser: Land Bank

“Development discourse over the past 30-40 years has been that African agriculture will not take off unless people have clear tenure security and there’s an underlying assumption that this is delivered through land rights certification or titling….,” Steven Lawry: Campbell Systematic Reviews 2014

Despite the Constitutions promise in:
25(6): A person or community whose tenure of land is legally insecure as a result of past racially discriminatory laws or practises is entitled, to the extent provided by an Act of Parliament, either to tenure which is legally secure or to comparable redress.

The government is yet to realise this promise.

Securing land rights and upgrading tenure in communal areas is an issue that has been inadequately dealt with since 1994. The lack of clarity around security of tenure has significant impacts on the individuals’ willingness to invest in and undertake agriculture or other activities on the land. Given the number of people and the extent of land involved, securing such tenure is a crucial area of intervention required from the state and other players. There is a tendency for land in communal areas or held by land reform beneficiaries, commonage land and state land (which may be occupied by individuals or groups) to be un- or underutilised. The need for secure tenure supports access to credit for development of the land – potential providers of credit have to be sure that the right to the land on which the development will take place is secure and that the individual cannot easily lose that right and the proceeds of the development. At a different level, the provider of credit must, in certain circumstances, and dependent on the extent of credit required, be confident that the land can be acquired when that land is utilised as collateral.

These issues are complex in the South African context. This seminar contributes to the discussion on communal land tenure security and attempts to explore alternative forms of land rights from various perspectives and presents recent practical approaches to the delays in solving communal land tenure security in South Africa.
Website
www.aeasa.org.za

Enquiries
If you have any queries, please contact Gill Slaughter at the Conference Registration Desk, or contact her on +27 83 263 3657

Language
The language of the Conference is English. We regret that translations services will not be provided.

Wi-Fi
For access to the public Wi-Fi at the Elangeni Hotel please click on the always on WIFI. A password is not required.

Conference Registration Desk
The Conference Registration Desk will be open during the following hours:

- Tuesday: 10h00 - 20h00
- Wednesday: 08h00 - 18h00
- Thursday: 08h00 - 18h00

Name Tags
You are requested to wear your name tags at all times for the purposes of identification to gain access to the conference sessions, lunches, and social functions.

Speakers’ Presentations
Please load your presentation(s) as soon as possible OR at least three hours before your presentation in the Speakers Prep Room next to the Conference Registration Desk.

Dress Code
In keeping with the temperate climate & holiday destination vibe of Durban, the Conference dress code is smart-casual, although delegates & their partners are expected to wear smart attire to the Gala Dinner.

Annual General Meeting of AEASA
Date: Wednesday 20 September
Time: 17h00 - 19h00

Copies of the Agenda and the Minutes of the Previous AGM will be available at the Conference Registration Desk on Wednesday 20 September.

Nominations of office bearers for AEASA Management Committee elections at the AGM:

This is an elective AGM. Nomination forms for elective positions on the Management Committee of AEASA are available at the Conference Registration Desk.

Nominations must be submitted to the Secretary of AEASA, Dr Kalaba, OR the Conference Registration Desk at least 30 minutes before the start of the AGM.

Social Functions

Welcoming Function
Date: Tuesday 19 September
Time: 17h30 - 20h00
Dress: Smart-casual
Venue: Elangeni Suites 1-5

Braai
Date: Wednesday 20 September
Time: 18h30 - 22h00
Dress: Casual
Venue: Durban Ski Boat Club
(Bus transport will be provided)

Gala Dinner
Date: Thursday 21 September
Time: 19h00 - 23h00
Dress: Smart attire
Venue: Great Ilanga Room
Best Contributed Paper Competition

Since 1988 a prize has been awarded for the best contributed paper presented at the Annual Conference. The judging of contributions is conducted in two phases:

1. Contents: Each contributed paper submitted to the Conference is subjected to a double-blind refereeing process. The three highest scoring papers are “upgraded” for presentation in a Plenary Session of the Conference. These three papers are given equal weighting for the second stage of judging, i.e., presentation.

2. Presentation: A panel of adjudicators appointed by the AEASA Management Committee score each of the “upgraded” papers in terms of the merits of their presentation. The most meritorious paper will be adjudged the recipient of the award by majority vote of the panel of adjudicators.

The prize is awarded at the Conference Gala Dinner.

Best Poster Paper Competition

A prize is awarded for the best poster paper presented at the Annual Conference, with the proviso that it must have been submitted to the Poster Session at the Conference and presented in the Poster Session at the Conference. Adjudication of the posters is conducted by a panel of judges appointed by the AEASA Management Committee. The selection committee shall consider both the contents and presentation of each eligible poster in deciding on the best poster award. The prize is awarded at the Conference Gala Dinner.

PhD Competition

Whereas AEASA has had a prize for Masters students (The Best Masters Thesis Award) since 1965, until now it has not had an award for PhD candidates. Senior academics in the Association have recently mooted the introduction of a PhD Competition; however, the rules of such an award have not yet been finalised and included in the Handbook for the Management Committee of AEASA. This year’s Conference LOC have used their discretion and introduced an award for the best contributed paper submitted by a PhD candidate or recent PhD graduate based on research conducted towards their PhD.

Each contributed paper is subjected to a double-blind refereeing process. After excluding the three “upgraded papers”, the four highest scoring papers that are eligible for the PhD Competition will be subjected to further refereeing by a panel of judges appointed by the Management Committee of AEASA. Although the four finalists are recognised by being presented in a particular session of the Conference, the panel of judges will rank the four papers based on their contents only.

The winner will be announced at the Conference Gala Dinner.
Dr Simon Streicher Brand (BScAgric, MA, DScAgric) was a prominent academic in the disciplines of Agricultural Economics, Economics and Business Leadership in South Africa. He also held several important positions in government service, including that of Chairman of the Economic Advisory Council to the Prime Minister. In 1983 he was appointed chief executive and chair of the Board of the Development Bank of Southern Africa (DBSA). He also served on the Board of the Industrial Development Corporation, amongst others. He was also an Honorary Member of AEASA

Dr Brand had been instrumental, through sponsorship by DBSA, in affording the Association the opportunity to invite an overseas speaker to a number of conferences during the 1980s. These included well known agricultural economists such as Prof. Glenn L Johnson, Prof Luther Tweeten and Prof EC Pasour. On 19 February 1992, shortly after his death, the Management Committee of AEASA decided that the principal address to the Annual Conference would be named after him in recognition of the major contribution that he had made to the discipline and to the Association.

The first Simon Brand Memorial Address was held in Natal (now KwaZulu-Natal) in 1992. The Lecturer was Prof Bruce Johnston, who had been supervisor for Dr Brand’s Masters thesis at Stanford University. Other Simon Brand Memorial Addresses held at AEASA Conferences in KwaZulu-Natal include Dr Conrad Strauss in 2001 and Prof Claudia Parliament in 2009.

We are delighted that Prof Awudu Abdulai accepted our invitation to present the 2017 Simon Brand Memorial Address at this Conference.
CONFERENCE FLOOR PLAN
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<td>Welcome by Vice President of AEASA: Dr Thulasizwe Mkhabele</td>
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<td>Welcome by Provincial Representative: Dr Stuart Ferrer</td>
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<td>13h40</td>
<td>Opening Address: MEC: Agriculture &amp; Rural Development</td>
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<td>14h00</td>
<td>AEASA Presidential Address: Ms Bongiswa Matoti</td>
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<td>14h45</td>
<td>Simon Brand Memorial Address: Prof Awudu Abdulai</td>
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<td>15h30</td>
<td>Tea</td>
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<td>16h00</td>
<td>The Best Contributed Paper Competition</td>
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<td>16h00</td>
<td>Chairperson: Dr P Chaminuka</td>
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<td>16h00-16h25</td>
<td>&quot;The regulation of water allocation and quality in irrigated agriculture in South Africa&quot; by Njirainia GW, Thiamb DR &amp; Muchapondwa E</td>
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<td>16h30-16h55</td>
<td>&quot;Investing in collective reputation: Sheep farmers, geographic indicators and collective action in the Karoo, South Africa&quot; by van der Merwe M, Kirsten JF &amp; Trienekens JH</td>
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<td>17h00-17h25</td>
<td>&quot;Measuring the fragility of agribusiness value chains: A case study of the South African lamb chain&quot; by Jordaan D &amp; Kirsten JF</td>
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<td>17h30-20h00</td>
<td>Welcoming Function: Venue: Elangeni Suites 1-5</td>
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<td>Session</td>
<td>Authors/Topics</td>
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<td>08h30 - 09h15</td>
<td>3rd Plenary Session: “South Africa’s land reform policy landscape: what is new?”</td>
<td>by Dr Peter Jacobs</td>
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<td>09h15 - 10h00</td>
<td>Poster Presentation Session</td>
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<td>10h30 - 10h55</td>
<td>1st Contributed Paper Session: South African Agricultural Policy</td>
<td>Chairperson: Dr H Jordaan, Valuation Studies</td>
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<td>10h30 - 10h55</td>
<td>&quot;A century of South African agricultural policy&quot; by Vink N, Kirsten J,</td>
<td>“Design factors influencing Willingness To Pay estimates in the BDM and the real choice experiment methods: a case of biofortified maize in Zambia” by Hamukwala P, Oparinde A, Binswanger H &amp; Kirsten J</td>
</tr>
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<td>11h00 - 11h25</td>
<td>&quot;Farm and state: South African agricultural policy between 1886 and 1948&quot; by Greyling J, Vink N &amp; van der Merwe E</td>
<td>“Pricing of rural water supply for human consumption in the open access regime using Contingent Valuation Method (CVM) in Lesotho” by Greffiths I</td>
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<td>11h30 - 11h55</td>
<td>&quot;Milk, bread and money - Policy implications for sector specific inflationary dynamics” by Louw M, Meyer F &amp; Kirsten J</td>
<td>“Willingness to pay for water connections in Windhoek, Namibia” by Karuaihe S &amp; Wandschneider P</td>
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<td>12h00 - 12h25</td>
<td>&quot;Effect of government intervention through quality restrictions on the wheat industry in South Africa&quot; by Naledzani Z, Chaminuka P, Machethe C &amp; Liebenberg F</td>
<td>“Assessment of consumers’ stated preferences for water and carbon footprint sustainability information: Insights from the Gauteng Province of South Africa” by Owustu-Sekyere E, Mahlathi Y &amp; Jordaan H</td>
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<td>12h30 - 13h30</td>
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<td>13h30 - 15h00</td>
<td>Research Symposia: New ideas in support of good governance for land reform communal landholding institutions</td>
<td>Organisers: LIMA (Lima Rural Development Foundation) &amp; SASA (South African Sugar Association</td>
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<td>15h00 - 15h30</td>
<td>TEA</td>
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<td>15h30 - 16h45</td>
<td>The Lima &amp; SASA Research Symposium continues</td>
<td>The NAMC Research Symposium continues</td>
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<td>17h00 - 19h00</td>
<td>AEASA AGM</td>
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<tr>
<td>18h30 - 22h00</td>
<td>BRAAI</td>
<td>Venue: The Durban Ski-Boat Club (Bus transport will be provided)</td>
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<tr>
<td>09h15 - 10h00</td>
<td>Poster Presentation Session</td>
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<tr>
<td>10h00 - 10h30</td>
<td>1st Contributed Paper Session</td>
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<tr>
<td>10h30 - 10h55</td>
<td>Smallholder Production &amp; Marketing</td>
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<td>Chairperson: Dr L Traub</td>
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<td>“Adoption of a resource based view to study participation of smallholder producers in high value markets: Empirical evidence from South Africa” by Grwambi B</td>
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<tr>
<td>11h00 - 11h25</td>
<td>Trade &amp; Markets</td>
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<td>Chairperson: Dr S Ngqangweni</td>
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<td></td>
<td>“Impact of trade controls on price transmission between Southern African maize markets” by Davids T, Meyer F &amp; Westhoff P</td>
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<tr>
<td>11h30 - 11h55</td>
<td>Smallholder cocoa farmers in Ghana</td>
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<td></td>
<td>Danso-Abbeam G &amp; Baiyegunhi L</td>
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<td>12h00 - 12h25</td>
<td>Trade &amp; Markets</td>
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<td>“Are Swaziland and South Africa white maize markets integrated?” by Dlamini T &amp; Louw M</td>
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<td>12h30 - 13h00</td>
<td>Research Symposia</td>
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<td>13h30 - 15h00</td>
<td>“Agricultural water issues and entrepreneurship in South Africa”</td>
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<td>Organiser: WRC (Water Research Commission)</td>
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<td>15h00 - 15h30</td>
<td>Smallholder cocoa farmers in Ghana</td>
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## THURSDAY 21 SEPTEMBER

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<thead>
<tr>
<th>Time</th>
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| 08h30 - 09h00 | **4th Plenary Session**  
**Water & Climate Issues in South African Agriculture**  
Chairperson & Discussant: Prof E Wale  
**The extent and expected impacts of climate change - a focus on South African agriculture**  
by Dr Peter Johnston |
| 09h00 - 09h30 |  
**Feeding a nation in the wake of climate change and resource constraints: selecting an appropriate farm-level response strategy**  
by Prof James Blignaut |
| 09h30 - 10h00 | **Discussion**  
10h00 - 10h30 | **TEA**  
2nd Contributed Paper Session  
**Water & Irrigation**  
Chairperson: Prof A Mushunje  
10h30 - 10h55 | **Explaining small farmers’ aspirations to expand irrigation crop production in Makhathini and Ndumo-B, KwaZulu-Natal Province, South Africa**  
by Chipfupa U & Wale E |
| 11h00 - 11h25 | **Accounting for the water footprint along the wheat-bread value chain: Does ground water matter?**  
by Mohlotsane P, Owusu-Sekyere E & Jordaan H |
| 11h30 - 11h55 | **Potential of Drip irrigation technology as an adaptation strategy in the Limpopo Basin: A Cost-Benefit Analysis and assessment of smallholder farmers’ willingness to pay**  
by Sacolo T & Abidoye B |
| 12h00 - 12h25 | **Risk efficiency of optimal water allocation within a single and multi-stage decision-making framework**  
by Madende P & Grové B |
| 12h30 - 13h30 | **LUNCH**  
5th Plenary Session:  
**Employment in Agriculture**  
Chairperson: Prof C Machethe  
13h30 - 14h15 | **Disemployment and partial compliance: the impact of the minimum wage in agriculture**  
by Prof Haroon Bhorat |
| 14h15 - 15h00 | **Panel Discussion on growing the agricultural sector of South Africa**  
Facilitator: Mr Wandile Sihlobo |
| 15h00 - 15h30 | **TEA**  
3rd Contributed Paper Session  
**Joint Ventures and Contractual Arrangements**  
Chairperson: Dr K Nhundu  
15h30 - 15h55 | **Dual moral hazard and adverse selection in SA Agribusiness: It takes two to tango**  
by Mkhabela T |
| 16h00 - 16h25 | **Inclusive business and land reform: Corporatisation or transformation**  
by Chamberlain W & Chamberlain W |
| 16h30 - 16h55 | **Impact of patricipation on smallholder farmers in interlocked contractual arrangements on household income in the dairy sector of Zambia**  
by Namulindwa R & Machethe C |
| 19h00 - 23h00 | **GALA DINNER**  
Venue: Great Ilanga Room, Elangeni Hotel |
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<th>Time</th>
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<tr>
<td>10h00 - 10h30</td>
<td>2nd Contributed Paper Session</td>
<td><strong>Food Security</strong></td>
<td>Chairperson: Prof I Oluwatayo</td>
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<tr>
<td>10h30 - 10h55</td>
<td>&quot;Debunking the myth: The positive contribution of crop production to food security in rural South Africa&quot;</td>
<td>by Hendriks S, Viljoen A, Marais D, Wenhold F, McIntyre A, Ngidi M, Annandale J, Kalaba M &amp; Stewart D</td>
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<tr>
<td>11h00 - 11h25</td>
<td>&quot;Food and nutrition security implications of the residence of an agricultural extension agent in the community: Evidence from Malawi&quot;</td>
<td>by Sibande L</td>
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<tr>
<td>11h30 - 11h55</td>
<td>&quot;New dimensions of vulnerability to food insecurity: Empirical evidence from rural households in Umzimkhulu, KwaZulu-Natal, South Africa&quot;</td>
<td>by Mhethwa S &amp; Wale E</td>
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<tr>
<td>12h00 - 12h25</td>
<td>&quot;Traction power source availability for tillage and its effect on household food security of smallholder farmers in KwaZulu-Natal&quot;</td>
<td>by Motokolo P, Mudhara M &amp; Chaminuka P</td>
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<tr>
<td>12h30 - 13h30</td>
<td>Lunch</td>
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<tr>
<td>15h00 - 15h30</td>
<td>3rd Contributed Paper Session</td>
<td><strong>Input &amp; Product Markets</strong></td>
<td>Chairperson: Dr M Kalaba</td>
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<tr>
<td>15h30 - 15h55</td>
<td>&quot;The Cape Wine Industry's demand for labour in the post-apartheid period: An application of Systems GMM Panel Estimators&quot;</td>
<td>by Conradie B Piesse J, Thirtle C &amp; Vink N.</td>
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<tr>
<td>16h00 - 16h25</td>
<td>&quot;Estimating the elasticity of export demand for South African agricultural commodities&quot;</td>
<td>by Ntombela S, Kalaba M &amp; Bohlmann H</td>
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<td>16h30 - 16h55</td>
<td>&quot;Price attributes of South African merino wool: A Hedonic Pricing Model approach&quot;</td>
<td>by Bahta Y</td>
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<td>19h00 - 23h00</td>
<td>Gala Dinner</td>
<td>Venue: Great Ilanga Room, Elangeni Hotel</td>
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## Conference Programme

**Thursday 21 September**

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<tr>
<td>10h00</td>
<td><strong>2nd Contributed Paper Session</strong></td>
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<td><strong>PhD Competition Finalists</strong></td>
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<tr>
<td>10h30</td>
<td><em>The water-economy nexus of different beef breeds at the abattoir and deboning plant</em></td>
<td>Dr Lloyd Baiyegunhi</td>
<td>by Maré F, Jordaan H &amp; Mekonnen M</td>
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<td>11h00</td>
<td><em>Net farm income and tractor prices in South African agriculture: A cointegration approach</em></td>
<td></td>
<td>by Gandidzanwa C, Kirsten J, Meyer F &amp; Liebenberg F</td>
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<tr>
<td>11h30</td>
<td><em>Assessing the impact of policy reforms on South African agricultural production using a vector error correctional model approach</em></td>
<td></td>
<td>by Ntombela S, Kalaba M &amp; Bohlmann H</td>
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<tr>
<td>12h00</td>
<td><em>Price stabilization, spatial arbitrage and market integration: The experience of Ethiopia</em></td>
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<td>by Yami M, Meyer F &amp; Hassan R</td>
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<td>12h30</td>
<td>LUNCH</td>
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<tr>
<td>15h00</td>
<td><strong>3rd Contributed Paper Session</strong></td>
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<td><strong>Farm Management</strong></td>
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<tr>
<td>15h30</td>
<td><em>Do farm-level technical efficiency and welfare complement each other? Evidence from Ghana’s Cocoa Industry</em></td>
<td>Dr C Punt</td>
<td>by Danso-Abbeam G &amp; Baiyegunhi L</td>
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<td>16h00</td>
<td><em>Factors contributing to cattle theft in the Eastern Cape Province: An application of Craggs Test</em></td>
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<td>by van Rooyen F, Lombard W, Ogundeji A &amp; van Niekerk H</td>
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<td>16h30</td>
<td><em>Triticale as an alternative to milling wheat: The case of the Western Cape Province, South Africa</em></td>
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<td>by Terblanche F &amp; Cloete P</td>
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<td>19h00</td>
<td>GALA DINNER</td>
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<td><strong>Venue</strong>: Great Ilanga Room, Elangeni Hotel</td>
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**Venue**

- **Elangeni Suite 3**
- **Great Ilanga Room, Elangeni Hotel**
Accounting for the water footprint along the wheat-bread value chain: Does ground water matter?
Mohlotsane PM, Owusu-Sekyere E & Jordaan H

Agriculture accounts for 99% of freshwater consumption and therefore the single largest freshwater user, globally. The Global Water Footprint Standard Approach is emerging as an important sustainability indicator in the agricultural sector. This assessment is a multidimensional indicator that reveals water consumption volumes by source and polluted volumes by type of pollution. The water footprint concept provides an appropriate framework for analysis to find the link between the consumption of agricultural goods and the use of water resources. In this paper, the Global Water Footprint Standard Approach was employed to examine water footprint along the wheat–bread value chain. The results indicate that 99.95% of the total footprint is attributed to wheat production at the farm level. The processing stage accounted for only 0.05% of the total water footprint. The findings further revealed that blue water footprint accounts for 80% of the total water footprint along wheat-bread value chain. Economic water productivity estimates indicated that value added to water as it moves along the wheat-bread value chain varies from one stage to another. Despite the higher proportion of water utilized at the farm level, economic water productivity estimates indicate that less value is added to water at this level, relative to the milling and bakery levels. Hence, we recommend that the economic dimension of water utilisation should be considered in the production decision of food producers.

Adoption of a resource based view to study participation of smallholder producers in high value markets: Empirical evidence from South Africa
Grwambi B

Several studies from the development literature have concluded that increased smallholder participation in high value markets is essential for meeting economic development and poverty reduction objectives. This literature has however not specified the set of resources that smallholder producers from developing countries require to exploit high value market opportunities. This study argues that the type and level of resources with which farmers are endowed has an effect on the share of produce that is sold to high value markets. The study further hypothesises that smallholder farms endowed with factors of production, personal intangible resources, process capabilities and dynamic capabilities are able to produce and sell a higher share of produce to high value markets than their counterparts who lack some of these resources. We tested this hypothesis among smallholder deciduous fruit producers in South Africa. Results indicate that farmers endowed with factors of production, personal intangible resources and process capabilities sold a higher share of produce to high value markets than farmers endowed with only factors of production and personal intangible resources. The study found no significant difference between the share of produce sold by farmers endowed with factors of production, personal intangible resources, process capabilities and dynamic capabilities and those with only factors of production, personal intangible resources and process capabilities. These results partially support our proposed theory. The findings imply that initiatives aimed at increasing smallholder participation in high value markets should look into how smallholder producers could develop the resources required to participate in high value markets.

Adoption of agrochemical management practices among smallholder cocoa farmers in Ghana
Danso-Abbeam G & Baiyegunhi L

This study explores smallholder cocoa farmers’ adoption decisions of agrochemical inputs in the Ghanaian cocoa industry using farm-level data collected from a sample of 838 farm households in four cocoa producing regions. Multivariate Probit and Tobit models were used to examine the determinants of agrochemical inputs adoption and the extent of adoption, respectively. The result of the study showed that agrochemical management practices are complementary and thus the adoption of an agrochemical input is conditioned on the adoption of others. Different household characteristics, household assets, institutional variables, and the perception of soil fertility status and the incidence of pests and diseases influence adoption of individual agrochemical input. Furthermore, the result of the study showed that intensity (or extent) of agrochemical adoption (measured as farmers’ expenditure on agrochemicals) is also influenced by some socioeconomic and institutional variables such as extension services, farmer’s visit to demonstration farms, for development efforts geared towards greater use of agrochemicals in Ghanaian cocoa industry are discussed.
Are Swaziland and South Africa white maize markets integrated?
Dlamini T & Louw M

In this paper an attempt to analyse the relationship between South African and Swaziland white maize market was made. Using time series data from 2000 to 2014, the aim of this study was to determine the extent of price transmission and thus market integration between the two markets. South African white maize spot prices, and Swaziland selling prices were used in the price transmission analysis. About 90 per cent of commercial white maize imports in Swaziland are from South Africa. Through the use of price transmission techniques including cointegration, error correction and threshold methods, it can be concluded that the markets are integrated, but not efficiently. The Engle-Granger test proved that there is a long run relationship of 73 per cent, while the Error Correction Model proved that the error correction term adjusts the disequilibrium of the system at a speed of 3.8 per cent per period; indicating inefficient market integration, thus misallocation of resources. This could imply that the Swaziland maize marketing and pricing policies forces consumers or producers to make decisions that do not represent their social benefits or costs. The current maize marketing system is responsible for the high domestic prices. The Asymmetric Error Correction, and Threshold Autoregressive models proved that there is symmetric adjustment of prices; Swaziland’s domestic prices respond in the same manner to South African price increases and decreases. Therefore, understanding market integration can assist policy makers design better social safety net programs essential for protecting and encourage growth in the maize industry.

Assessing the impact of policy reforms on South African agricultural production using a vector error correctional model approach
Ntombela SM, Kalaba M & Bohlmann HR

The paper seeks to examine the effects of agricultural policies promulgated post 1994 on agricultural production in South Africa. The first step in testing the policy effects is to select economic variables that act as proxies for policy reforms in the analysis. The selected variables include agricultural employment; exports; subsidies; input costs; and land planted by small-holder farmers. Agricultural gross production value was selected as a proxy variable for production. Following the selection of variables, a trend analysis is conducted to test their relationship with production. Secondly, a Johansen cointegration test is performed to test whether there is a true economic relation between these variables. After illustrating the existence of cointegrating relationship between variables, a Vector Error Correctional Model (VECM) was employed to quantify the effects of policy reforms. The VECM result shows that there exists a long run stable relationship among the variables. Notwithstanding, these variables do not significantly influence each other in the short-run implying that other factors other than policy reforms are driving the production growth in the short-run.

Assessment of consumers’ stated preferences for water and carbon footprint sustainability information: Insights from the Gauteng Province of South Africa
Owustu-Sekyere E, Mahlathi YY & Jordaan H

Given the current water scarcity situation and the impact of climate change on global warming in South Africa, there is a need for strategic policies that focus on consumers’ changing behaviour and attitude towards sustainable food production and consumptions. The present paper has examined consumers’ stated preferences for water and carbon footprint sustainability attributes in the northern part of Gauteng Province. Discrete choice experimental data and a random parameter logit model were employed in the study. We find that heterogeneity in preferences exists for water and carbon footprint sustainability attributes. The heterogeneity in preferences for water and carbon footprint sustainability attributes are significantly related to the individual’s age, gender, income, and education as well as awareness of water scarcity and carbon emissions. The findings suggest that to communicate potential benefits and costs of water and carbon footprints effectively, policy-makers and interested groups should identify different heterogeneous consumer segments, and assess potentially simpler or more direct awareness or labelling methods that signal ecological sustainability as a new water scarcity and carbon emission campaign strategy.
Biofuels and livelihoods: Empirical findings on the impacts of Jatropha farming in the Mangochi District, Southern Malawi
Chamdimba OY, Ortmann GF & Wale EZ

This study evaluates the welfare impacts of jatropha hedge-row cultivation measured as consumption expenditure per adult equivalent for smallholder farmers in southern Malawi. Household survey data collected in 2014 from Southern Malawi were used. Household survey data from southern Malawi collected in 2015 from 300 farmers using purposive and random selection strategies were used. Endogenous switching regression method was used to address the selection bias problem and control for unobserved farmer and farm characteristics. The analysis suggests that when we account for the unobserved covariate effect and the endogeneity problem, jatropha cultivating farmer’s welfare was not any better or worse-off than randomly selected households in the sample. The results point to the need for a more detailed jatropha value chain assessment to identify opportunities to further biofuels development, commercialization and aimed at increasing benefits in the value-chain, especially to feedstock producers. Farmers expressed the need for a proactive engagement to build a robust marketing system that stimulates demand and lobbied for improved jatropha farm-gate prices. It is also worth noting that, overall, household demographics, wealth, access factors and farm characteristics correlated to probability of higher welfare. This result echoes the need for policy makers to continue conceptualising rural poverty reduction programmes, more holistically, to also include wealth-creating ventures.

Commercialisation of African indigenous vegetables for rural development; the case of Siaya County, Kenya
Jalang DA, Otieno DJ & Kosura W

Commercialization of African Indigenous Vegetables (AIVs) holds potential for increased output, diverse product formation, greater market opportunities and improved income. This is critical for alleviating poverty in rural areas. Despite the growing literature on AIVs, little is documented on participation by farmers in emerging high value markets particularly in the domestic domain. The study assessed participation by smallholder farmers of AIVs in supermarkets and other high value markets (schools, hospitals and hotels) in rural Kenya. Consequently, the economic returns from these markets and factors influencing smallholder farmers’ participation were analyzed. The study revealed that the traditional marketing system (open air market and farm gate) is dominant as less than 13% of farmers sell their vegetables in domestic high value markets. However, farmers who supply AIVs to high value markets get close to ten times more profit compared to their counterparts in the traditional market domain. The results of the logit model show that the years of formal education, household income, price, quantity of output and access to credit had significant positive influence on smallholder farmers’ participation in high value markets particularly in hotels, hospitals and schools. The findings of the study recommend the need to necessitate policy interventions on; timely price information, production inputs, non-restricted credit especially from informal member schemes and access to quality farm information and skills. Development policy needs to fully integrate and contextualize the resource-constraint rural producers in the commercialization process of AIVs; this will ultimately contribute to improved welfare.

Debunking the myth: The positive contribution of crop production to food security in rural South Africa
Hendriks SL, Viljoen A, Marais D, Wenhold FAM, McIntyre AM, Ngidi MS, Annandale JG, Kalaba M & Stewart D

This study investigated the consumption and production patterns of rural households (278 in summer and 280 in winter) in four selected sites in the poorest local municipalities in South Africa. Most households were food insecure using the dietary diversity index. Very few households consumed an adequate diversity of fruit and vegetables daily, reporting that a diverse diet was unaffordable. Seasonality affected the availability of fresh fruit and vegetables, reducing the availability in winter. An encouraging number of households (more than eight in ten households) were engaged in agriculture in Ingqaza Hill (Eastern Cape), Jozini (KwaZulu-Natal) and Maruleng (Limpopo), compared to only four households in the more arid Ratlou area (North West Province). Even where water was available from irrigation schemes and streams or the Jozini dam access to water constrained the production of many nutritious crops. However, the study found an encouraging link between engagement in crop production and improved dietary diversity. Income from farmland production and irrigated agriculture led to higher intakes of fruit and vegetables in general, as well as higher consumption of meat, eggs, fish, milk, roots and tubers. The findings dispel the widespread myth that South Africa’s rural households are not actively engaged in crop production. The findings suggest that increased research, development and extension need to be directed at poor rural communities to improve year-round food security and ensure affordable and nutritious diets.
Design factors influencing Willingness To Pay estimates in the BDM and the real choice experiment methods: a case of biofortified maize in Zambia
Hamukwala P, Oparinde A, Binswanger H & Kirsten J

Two of the experimental methods used to estimate willingness to pay (WTP) for a non-market good, the Becker-Degroot-Marshark (BDM) mechanism and the real choice experiment (RCE) often lead to significantly different WTP estimates, complicating the choice between the methods. In Zambia the same group of researchers used both techniques to evaluate WTP for orange maize, which provides more vitamin A than other varieties. This provided an opportunity to analyze the sources of the difference. In the BDM experiment, one group of respondents was provided with more training opportunities than the other, and made higher bids. Accounting for lexicographic behavior in the RCE reduced the estimated WTP. These two design factors together resulted in a decrease in the WTP difference for orange maize (1279-632 ZMK) although the difference remains statistically significant. More training was also shown to eliminate the effects of different orders in which maize varieties were presented.

Do farm-level technical efficiency and welfare complement each other? Evidence from Ghana’s Cocoa Industry
Danso-Abbeam G & Baiyegunhi L

Technical inefficiency persists in Ghana’s cocoa industry. Farm-level guidelines from empirical studies are key to inform programmes dealing with this challenge and subsequently improves farmers’ welfare. This study evaluates the extent of technical, pure technical and scale efficiencies in the Ghanaian cocoa industry by applying Data Envelopment Analysis (DEA) approach. It also used recently proposed Conditional Recursive Mixed-process (CMF) framework while controlling for endogeneity to examine the two-way effects of farm-level technical efficiency and welfare. The study reveals that, with no additional inputs, farmers have the potential of increasing their output by an average of 56% with mean pure technical and scale efficiencies estimated at 76% and 58%, respectively. The study further indicated that observed inefficiency among cocoa farmers is due to both inefficient utilization of inputs and failure to operate at the most productive scale size as the majority (about 69%) of farmers’ exhibit increasing return-to-scale. Furthermore, findings from the study indicated that improved technical efficiency and welfare of smallholder cocoa farmers are crucial for the sustainable growth of the Ghanaian cocoa industry as farmers’ efficiency and welfare significantly complement each other. In other words, improved welfare enhances technical efficiency and higher technical efficiency score translates into better welfare. Farm-level investment in education targeted at farmers to improve their managerial and technical capacities will enhance their ability to optimize the operational size of the cocoa production system, and subsequently improve their welfare.

Dual moral hazard and adverse selection in SA Agribusiness: It takes two to tango
Mkhabela T

The paper employs a dual moral hazard and adverse selection model to analyse partnerships in agribusiness under joint venture contracts with asymmetric information and imperfect quality measurement by the agent and principal both of which contribute to the final quality of the product in terms of production effort and marketing (offtake) effort, respectively. A salient feature of this paper is the analysis of the ramifications of joint venture contract for quantity and quality, which is often deficient in most previous analyses of moral hazard. The research found that contracts that have rewards based on the quantity produced weakened the agent’s incentive to make effort in ensuring quality. This finding could explain why most contracts in agriculture for products with differentiated markets rarely use retail-price conditioned contracts.

Effect of government intervention through quality restrictions on the wheat industry in South Africa
Naledzani Z, Chaminuka P, Machethe C & Liebenberg F

Wheat is South Africa’s second most important grain crop, and is produced in three regions, namely, winter rainfall, summer rainfall, and the irrigation regions. Despite being a net importer of wheat, the country has stringent wheat quality requirements that are believed to have stifled growth of wheat production in the country due to the inverse relationship between wheat quality and yields. This paper investigates the effects of government intervention through the Agricultural Product Standards Act No. 119 of 1990 (APS) on growth of commercial wheat production and the wheat industry as whole. Forward regression and benefit-cost analysis was applied to data on wheat area planted, seed adoption rates, prices, and cultivar performance from 1994-2014. Results show that application of APS has resulted in losses of approximately 42 000 tons. The benefits of pursuing the current quality standards amounted to R28 million while the costs amounted to R46 million. The resulting benefit-cost ratio was 0.60, implying that for every rand invested towards breeding for quality alone, 40 cents is lost. It can be concluded that government intervention through quality standards has led to more tonnage loss than gain. In addition, investments made towards quality improvement alone have not been recovered due to the high standards. There are therefore cogent reasons to consider relaxing the current quality standards to allow for higher wheat outputs, thus unlocking growth in commercial agriculture.
Estimating the elasticity of export demand for South African agricultural commodities

Ntombela SM, Kalaba M & Bohlmann HR

The paper seeks to empirically estimate the new export demand elasticities for South African agricultural commodities that will improve the efficiency of policy analysis in the country. Using the updated time-series data that range from 1970 to 2015 and a refined estimation techniques, the paper produced new export demand elasticity for different agricultural commodities which ranged from -1.57 for livestock to -3.24 for horticulture commodities. The results suggest that agricultural commodities have elastic export demand and they are consistence with previous international studies that have obtained similar results for their respective countries.

Evaluating the impact of the small stock marketing scheme on spatial sheep market integration in Namibia

Ijambo BD, Louw M & van der Merwe M

The Namibian government introduced the small stock marketing scheme (SSMS) on the sheep market in 2004, which reduced the exportation of live sheep to South Africa. A quantitative export restriction policy (such as the SSMS) causes disequilibrium between spatial markets, because the policy reduces the exportation of a commodity. As a result, this paper aims to examine the long-run equilibrium and short-run dynamics between the Namibian and South African markets. The spatial price integration analysis is evaluated by sub-dividing monthly price series data into pre-SSMS (1999M01-2003M12) and post-SSMS (2004M01-2015M12). The study used the Engle and Granger (1987), and the Johansen’s (1988) cointegration approach. The analyses found a long-run equilibrium relationship between spatial markets. The price transmission, post-SSMS (0.94) is marginally higher than pre-SSMS (0.88), which contradicts a priori expectation that the policy weakened price transmission. The pre-SSMS evaluation indicated a presence of short-run dynamics. Post-SSMS, the VECM revealed no bidirectional effect. The VECM also specified that the Namibian prices are doing the adjustments in the short-run to return to the long-run equilibrium position. The study further established that the speed of price adjustment post-SSMS is slightly higher than the pre-SSMS. Since the price transmission and speed of adjustment improved, post-SSMS, the study concludes that the SSMS policy did not have a detrimental effect, as anticipated. The study therefore suggests that an export restriction policy that varies is better than an export control policy that does not allow any variation.

Explaining small farmers’ aspirations to expand irrigation crop production in Makhathini and Ndumo-B, KwaZulu-Natal Province, South Africa

Chipuupa U & Wale EZ

This paper explores the factors influencing aspirations of small-scale farmers to expand irrigation farming activities. It demonstrates the importance and strength of aspirations in informing agricultural policies and programmes and understanding the behaviour of farmers and their vision regarding their farms. The Heckman two-step regression model was used to determine factors affecting aspirations/willingness of farmers to expand in the first stage and their ability to achieve or realize those aspirations in the second stage. The paper identifies five key factors that influence farmer aspirations (willingness to expand), i.e., positive psychological capital, access to markets, access to credit and finance, land tenure security and membership to social groups. Asset ownership, access to markets and local resource use conflicts were significant in determining farmers’ ability to achieve those aspirations. In conclusion, the study provides empirical evidence critical in unlocking on-farm entrepreneurship in smallholder irrigation.

Factors contributing to cattle theft in the Eastern Cape Province: An application of Craggs Test

van Rooyen FM, Lombard WA, Ogundeji A & van Niekerk HN

The livestock industry in South Africa is one of the largest role players in the countries agriculture with the gross value of animal products contributing 47.2% to the total gross value of agricultural production in 2015/16. The value of slaughtered cattle and calves amounted to R30 389 million in 2015/16. Livestock theft is one of the largest problems faced by livestock farmers in South Africa and livestock farmers are using differed methods in attempt to prevent losses. Yet limit research is available that focuses on South African conditions. The objectives of this study is to determine the internal and external factors that affect cattle theft in the Eastern Cape and the results can be used to make recommendations on the prevention of cattle theft. Data was collected with the use of a structured questionnaire from 225 livestock farmers Eastern Cape Province. Craggs test was used to analyse and investigate the factors affecting cattle theft. Results showed that paying workers more often had a positive relationship with the occurrence of theft. Farms closer to the Lesotho boarder and farms with more ridges had positive occurrence relationship of theft. Also farmers who experienced higher levels of theft used guards more often in problematic times. Farmers who counted more often had a negative relationship to the occurrence of cattle theft. The results suggest that effective methods of controlling cattle theft in the Eastern Cape Province include the: counting on a regular basis, using guards and paying workers more often than once per month. Similar research should be done in other provinces before results could be generalized.
Farm and state: South African agricultural policy between 1886 and 1948
Greyling J, Vink N & van der Merwe E

This chapter revisits the development of South African agricultural sector during the early mineral revolution (1886-1948) and contributes to the recent extension of the structural transformation literature that stresses the importance of taking underlying country fundamentals into account with development policy formation. This case illustrates the complexity of the political tensions created during the transformation process and their long-term impact, since these played a significant role in putting the country on the path to grand apartheid. In addition, a newly compiled long-term dataset on agricultural prices, output and public spending is provided, to add a quantitative perspective to the ability of either party to capture the state and a more precise estimate of the timing of the disintegration of the alliance. Two previously underemphasised aspects of stakeholder interactions are also explored: One, the nature and policy impact of the interaction between white and black farmers and the mines within the context of shared and conflicting interests. Two, the changes in the nature and extent of support to white farmers during this period.

Food and nutrition security implications of the residence of an agricultural extension agent in the community: Evidence from Malawi
Sibande L

This article estimates the effects of the residence of an agricultural extension agent in the community on household dietary diversity score (HDDS), household dietary variety score (HDVS) and per capita consumption of macro and micro-nutrients using the nationally representative two-wave Integrated Household Panel Survey (IHPS) data of 2010 and 2013 for Malawi. Empirical analyses employ fixed effect models and the results suggest that the residence of an agricultural extension agent in the community has positive effects on food and nutrition security. However, the results show consistently insignificant effects of subsidised fertilizer on all indicators of food and nutrition security used in this study. These results suggest that policies which focus on promoting availability of agricultural extension agents in the community might be more effective and efficient in addressing food and nutrition insecurity in developing countries compared to other policies. This highlights the importance of supporting provision of agricultural extension advisory services to farmers in order to contribute to achieving household and per capital food and nutrition security in agro-based developing countries.

Impact of participation on smallholder farmers in interlocked contractual arrangements on household income in the dairy sector of Zambia
Namulindwa RK & Machete C

Contract farming and interlocked contractual arrangements in particular are considered as one of the instruments to promote market participation of smallholder farmers. However, it remains unclear whether participation in these arrangements enhances smallholder farmers’ household incomes, especially since their marketed volumes and margins are low. This study assesses the impact of smallholder farmers’ participation in Zambia’s dairy sector interlocked contractual arrangements on household income. A multi-stage sampling design was used to select 266 households from milk shed areas from three districts in Lusaka and Central provinces of Zambia. Of these households, 103 participated in interlocked contractual arrangements, while 163 were non-participants. Propensity score matching techniques were used to estimate data collected through semi-structured questionnaires. Results reveal that participation in interlocked contractual arrangements has a positive impact on milk revenue and some influence on household income, although statistically the contributions are insignificant. Therefore, while interlocked contractual arrangements enhance smallholder farmers’ access to markets, they are not a panacea for addressing rural poverty. Thus, reorientation from overemphasis on contract farming to a mix of other strategies, such as livelihood diversification, is needed.

Impact of production shocks on maize market in Ethiopia: implications for regional trade and food security
Yami M, Meyer F & Hassan R

In this article, we demonstrated a likely impact of a bumper harvest and drought shocks on the maize market in Ethiopia. A single commodity partial simulation analysis was employed to examine the supply side shocks on the maize market. Regional market integration of Ethiopia’s white maize market with the South Sudan and Kenyan maize markets was also examined using cointegration analysis. Despite the renewed conflict in South Sudan, Addis Ababa maize market is cointegrated with Juba’s maize market. Model simulation analysis indicated that a 20 per cent increase in maize yield could reduce the nominal maize price by 81 per cent. This implies a decrease in the maize price level of 238 per cent (110 USD/t) below the export parity price. This makes maize exports profitable, and shifts the trade regime from autarky to an export parity regime. On the other hand, the effect of drought could increase maize prices by 61 per cent in the short-run (within the year). The effect could result in the domestic wholesale maize price moving over the upper threshold import parity price by 46 per cent (126 USD/t). As a result, maize imports would become profitable. At the current market price, the domestic maize price is wandering between the border prices and it is unprofitable to export maize. Therefore, lifting the export ban, even during normal harvest season, would not do any harm to the domestic maize price.
Impact of trade controls on price transmission between Southern African maize markets
Davids T, Meyer FH & Westhoff PC

Maize is an important staple crop in Southern Africa that has often been prioritised from a policy perspective, particularly in the imposition of export controls under periods of perceived uncertainty. This tendency has been particularly relevant in Zambia, which has also emerged as an important surplus producer in Southern Africa in recent years. Its favourable transport differential and non-GM maize has helped Zambia grow its share in Zimbabwean maize imports at the expense of South Africa, but exports into Zimbabwe remains competitive between the two countries and particularly during periods of export control in Zambia, South Africa typically steps in to supply the deficit. This study therefore evaluates the extent of price transmission between Zambia, South Africa and Zimbabwe under two exogenous regimes defined by periods of open trade and trade controls imposed by the Zambian government. It uses secondary data of monthly white maize prices in these three markets to quantify the long and short run price relationships under different regimes. While several authors have noted that trade is not a prerequisite for price transmission between markets, this study finds evidence that the imposition of policies that inhibit trade also influences the rate and nature of price transmission between markets. Periods of open trade were characterised by efficient transmission of prices from Zambia to Zimbabwe, which is in line with typical trade patterns, but during periods of trade controls, no relationship was found between Zambian and Zimbabwean markets, with prices being transmitted from South Africa to Zimbabwe instead.

Inclusive business and land reform: Corporatisation or transformation
Chamberlain W & Chamberlain W

Inclusive businesses (IBs) are seen to contribute to rural development and agricultural sector transformation. This paper illustrates that these IBs are complex organisational structures made up of standard instruments that allow inclusion of smallholders and low-income communities into commercial agricultural value chains. Land reform policies play a vital role in the establishment of these IBs: in general through creating dependencies for commercial agri-businesses and more specific by stimulating specific instruments. The outcomes of IBs question if the overall goals of development and transformation can be achieved through these partnerships. Whereas effects at project level seem to be fairly positive, illustrated by an increase in production and assets, the individual beneficiaries only experience a marginal change in their situation. Ownership is an essential starting point for more inclusiveness, but beneficiaries also need to be financially supported and empowered. External parties, such as government, play a key role in this process. Furthermore, transparency and time are essential to grow trust between the unfamiliar business partners and to generate financial benefits from new or redeveloped farming operations. Although IBs alone are not a panacea for overall sector transformation, they do contribute to investment needs into the sector and smallholder exposure to commercial markets.

Investing in collective reputation: Sheep farmers, geographic indicators and collective action in the Karoo, South Africa
van der Merwe M, Kirsten JF & Trienekens JH

Specialty, regional and authentic food products have become an important part of consumer purchases. Literature has investigated the establishment of producer reputation for quality, but few researchers have focussed on the factors that influence decisions to invest in collective reputations. The paper employs the PLS-SEM path modelling technique to mainly understand the factors that are most likely driving the farmers’ decision to invest in the collective reputation of a region of origin product, such as Karoo Lamb. The paper revealed effortless transactions between farmers and abattoirs, farmer education, farmer loyalty and the risk seeking nature of farmers as the main drivers to encourage investments in the collective reputation of Karoo Lamb.
Measuring the fragility of agribusiness value chains: A case study of the South African lamb chain
Jordaan D & Kirsten JF

The ability to measure fragility is essential to operationalising the concept of value chain fragility as a phenomenon in the uncertainty landscape. Some literature argues that it is easier to determine how fragile a complex system, like a value chain, is rather than trying to predict the probability and impact that events could have on the system. The framework detailed in this paper enables the detection of non-linearity and the quantification of the extent of the non-linearity at the factor, actor, and chain level in response to progressively deteriorating value chain fragility factors. This approach is akin to stress-testing, albeit if for multiple factors and actors aligned in a chain of interdependencies. The framework to measure agribusiness value chain fragility provides an entirely alternative, and perhaps more appropriate and elegant, approach to the traditional value chain “risk assessment”. The ability to measure value chain fragility is particularly valuable in a context where risk and uncertainty are more pervasive, consequential and unpredictable. Considering the fragility results of the case study, a number of specific conclusions are noteworthy. The first is that a number of very specific factors, like quality and safety performance, and cash flow position, have consistently high fragility scores, from the production level through to retailing. The second is that while a golden thread does, indeed, pass through the chain, a range of fragilities is also uniquely localised to a specific role-player or activity, which highlights the techno-economic uniqueness of individual specific activities in a chain.

Milk, bread and money - Policy implications for sector specific inflationary dynamics
Louw M, Meyer F & Kirsten J

Monetary policy makers often consider core inflation, with food and energy components excluded, in order to gauge “true” movements in inflation. This paper adds to the growing body of literature that proves that food inflation should be included and regarded in its own right when monetary policy is devised. The paper proves that second round effects associated with food inflation are significant and that food inflation in general, and for all it sub-components, is persistent. The findings support advice for a more holistic policy approach to managing food inflation. This could include industry-specific policies, aimed at curbing price increases that result in first round food inflation, combined with monetary policy geared towards minimising the effect of second round food inflation.

Net farm income and tractor prices in South African agriculture: A cointegration approach
Gandidzanwa C, Kirsten J, Meyer F & Liebenberg F

The purpose of this paper is to test and provide an explanation for the relationship that exists between the tractor price index and net farm income using a revised tractor price index. In this paper, we compare previous approaches for deriving the tractor price index and relate the tractor price indexes to net farm income in agriculture. The revised tractor price index is compared to the Abstract of Agricultural Statistics tractor price index using both descriptive and econometric analyses. The Abstract tractor price index shows no cointegration with net farm income, while growth rates show a weaker relationship between net farm income growth and the Abstract tractor price index growth rates. Contrary to theory the tractor price reported in the Abstract does not show a cointegrating relationship between farm income and tractor prices. This calls into question the estimation methods in the measurement of tractor prices as net farm income should be a leading indicator in the tractor market. Imprecision in measurement affects analysis and ultimately policy recommendations with regards to the tractor market in South Africa. This alludes to the need for precision in the measurement of agricultural economic indicators such as the index of tractor prices.

New dimensions of vulnerability to food insecurity: Empirical evidence from rural households in Umzimkhulu, KwaZulu-Natal, South Africa
Mhethwa SL & Wale EZ

Using a unique dataset from a typical rural area in South Africa, the study distinctively examines vulnerability to food insecurity using the Vulnerability as Expected Poverty (VEP) model, Principal Components Analysis (PCA) and cluster analysis. The findings suggest that it is not mere access to resources but utilization, despite prevailing constraints (a function of positive psychological capital endowment), that matters most for food insecurity and vulnerability. Social and human capital (especially the education level of breadwinners), gender and age-related deprivations, age bracket (an increase in age is an asset until about 65 when it becomes a liability), and the capacity of coping strategies to enable households tackle food insecurity and vulnerability are the most important influencers. Easy consumption credit improves access to food in the short-term but depletes asset base in the long-term and aggravates vulnerability. Credit and finance institutions operating in rural areas have to be better regulated. On equity grounds, decision-makers will have to focus on the vulnerable segment of the population, including those households that are transient food insecure, food insecure, and currently food secure but vulnerable. The last group can easily remain food secure with marginal and less costly interventions.
Potential of drip irrigation technology as an adaptation strategy in the Limpopo Basin: A Cost-Benefit Analysis and assessment of smallholder farmers’ willingness to pay
Sacolo T & Abidoye B

Water resources in the Limpopo river basin are increasingly becoming scarce in the face in increasing demand. Population growth implies the need to produce more food and frequent or severe droughts renders rain fed agriculture more risky. The use of drip irrigation has a potential to improve water productivity. However, the adoption of drip irrigation technology by smallholder farmers in many food-insecure parts of Africa remain relatively low despite various promotion initiatives. Using choice modelling data from 1035 farming households within the Limpopo River Basin, we estimate a mixed logit random parameter model to explore the factors that influence farmers’ willingness to adopt drip irrigation. The result shows that initial cost of drip irrigation significantly influences demand negatively. This is also reflected in the importance that farmers place on subsidy. There is evidence that water savings is an important factor in the demand for drip irrigation. However, farmers do not seem to show preference for larger water saving benefits. The role of extension in the demand for drip irrigation is minimal. Farmers in Upper Umzingwane have a negative preference for credit towards the purchase of drip irrigation system. We also use the standard cost-benefit analysis framework to determine the feasibility of using drip in vegetable production. We compute the economic internal rate of return (EIRR) and economic net present value (NPV), and comparing the EIRR with the assumed 10% discount rate. Results show that investment is economically feasible, with positive NPVs and EIRRs exceeding the minimum threshold of 10%.

Price attributes of South African merino wool: A Hedonic Pricing Model approach
Bahta YB

In this study we quantified the association between price of merino wool sold at auction and the characteristics of wool according to type (diameter), style and length. We employed seven hedonic models to calculate the contribution of wool characteristics to price using secondary data of wool sold during 2007/2008 to 2015/2016 auction seasons. The hedonic models estimated the contribution of wool diameter, ranging from superfine (<19 microns) to super/over strong (24.1-27 micron), length (mm) as well as the contribution of style in aggregate to the total price of wool. Overall, the results indicated that Bellies-style had the main influence on the price of wool followed by fleece-length. Pieces-style, fleece-superfine, Lox —style, bellies-length, fleece-style, fleece-medium, fleece-strong, fleece-fine, Lox super-strong was found to negatively influence the price of wool. The findings provided evidence for the demand for quality attributes associated with wool. This information could be used by woolgrowers and other interested stakeholders to ensure that wool quality meets market demand.

Price stabalisation, spatial arbitrage and market integration: The experience of Ethiopia
Yami M, Meyer F & Hassan R

Since 2003, domestic food prices in Ethiopia have been rising at a higher rate than international prices have. In response, the Ethiopian government pursued a wide range of policy interventions after 2008 to stabilise domestic grain markets. The purpose of this study was to address two key questions related to the above situation. The first was to understand and explain why the inflation in food prices has persisted in Ethiopia, in spite of the observed growth in food production, and the second was to investigate how government policy interventions have influenced price stability in domestic food markets. Understanding the market-related causes of high grain prices requires a holistic approach to modelling market structure, international price shock transmissions, and trade policy shifts. Such an in-depth analysis has not been carried out in Ethiopia and hence that is the intended contribution of this study. Findings of the study demonstrate that involvement of the Ethiopian government in commercial wheat imports and distribution at subsidised prices has not insulated the domestic grain market from international price risks. Despite the presence of a long-run relationship and absence of Asymmetric Price Transmission (APT), the domestic wheat prices are distorted by the government’s secretive and unplanned interventions. This suggests that the Ethiopian government’s food price stabilisation efforts through a state trading enterprise have not only failed to stabilise prices, but have even exacerbated the price spreads between the domestic and world wheat prices.
Pricing of rural water supply for human consumption in the open access regime using Contingent Valuation Method (CVM) in Lesotho
Greffiths IJ

This study investigates the price of water for human consumption in the rural area of Qholaqhoe in Lesotho using the sample size of 199 rural households divided into three parts of the starting bids (66 for M1.00, 66 for M1.50 and 67 for M2.00). The study used double-bounded bid elicitation format to test whether the three pre-determined starting price bids (M1.00, M1.50 & M2.00) has influence on the households’ WTP for improved rural water supply. This contingent valuation study further used the purposive and random sampling method to conduct household in-person interviews in Qholaqhoe community. The two double bounded models were used to determine the impact of socio-economic characteristics, level of knowledge, attitudes and perception on rural households’ WTP. The first double bounded model was econometrically estimated without the aforementioned covariates and yielded a mean WTP of M1.68 per 20 litres jerry can of water. The unrestricted double bounded model with the covariates yielded the mean WTP of M2.17 per 20 litre jerry can (LB M1.46 and UB M2.41) for improved water supply. The results of the unrestricted model show that WTP was positively related to the following variables: household income, gender, household size, level of knowledge about water shortage health related risks, perception towards weekly water availability and type of employment. WTP was found to be negatively related to distance from water source. From secondary data, the study realised that the price of water per 20 litres jerry can is M1.50 hence three recommendations follow: First, the government through Water and Sewage Authority (WASA) should consider instituting a policy that charges rural water consumption for improved reliable water supply. Secondly, the Water and Sewage Authority (WASA) through consultation with relevant stakeholders should consider charging rural household water consumption by pricing water between LB M1.46 and UB M2.41 per 20 litre jerry can to invest in rural water supply. Lastly, the government should consider socio-economic status of the household before pricing water.

Risk efficiency of optimal water allocation within a single and multi-stage decision-making framework
Madende P & Grové B

The main objective of this study was to compare the results obtained from modelling irrigation water allocation decisions within a single-stage decision-making framework with the results obtained within a multi-stage sequential decision-making framework under a full water quota and a restricted water quota. An Excel® risk simulation model that utilises evolutionary algorithms embedded in Excel® was developed and applied to optimise irrigation water use. The results showed improved risk management within a multi-stage decision-making framework as indicated by higher gross margins and reduced variability due to improved irrigation scheduling decisions under both a full and restricted water quota scenario. A significant reduction in per state irrigation water use resulted within a multi-stage decision-making framework which resulted in improved gross margins. The resulting monetary value of modelling irrigation decision within a multi-stage sequential decision-making framework was R11 149 and R14 413 under a full and restricted water quota respectively for a risk averse decision-maker. Relatively lower values of R4 261 and R7 019 for a full and restricted water quota respectively resulted if risk neutrality is assumed. The cost of a water restriction within a single-stage and multi-stage decision-making framework of R218 319 and R215 561 respectively resulted under a risk neutral framework. Under risk aversion, a slightly lower cost of a water restriction of R212 513 and R209 249 was generated within a single-stage and a multi-stage decision-making framework respectively.

The Cape Wine Industry’s demand for labour in the post-apartheid period: An application of Systems GMM Panel Estimators
Conradie B, Piesse J, Thirtle C & Vink N

Access to global markets protected jobs in the Cape wine industry from the early impacts of post-apartheid labour market reform, but by 2005 growth had stopped. This analysis recorded a long run wage elasticity of -0.38 for the next ten years, which indicates that the 51% increase in the statutory minimum wage of 2013 was welfare enhancing. We show that is was for regular staff, but that it made casual workers more vulnerable. These findings confirm the view that the reform deepened the divide between privileged insiders and the vulnerable outsiders whom it sought to protect. Output elasticities are presented too.
The regulation of water allocation and quality in irrigated agriculture in South Africa
Njirainia GW, Thiamb DR & Muchapondwa E

The purpose of this paper is to evaluate the extent to which previous water regulatory initiatives introduced in South Africa have affected water use efficiency and quality status. We consider three major water policy reforms: water pricing, compulsory licensing and an institutional establishment of Water User Associations – WUAs, and evaluate the influence of such policies on irrigation water use efficiency and quality. We derive sub vector water use efficiency using Data Envelopment Analysis (DEA) techniques and model water quality using regression methods, following classifications and guidelines suggested by the Department of Water and Sanitation (DWS): ideal, acceptable, tolerable and unacceptable water quality categories. Using stratified random sampling we collect data from 183 irrigation farmers. The results indicate that, most of the farmers are water use inefficient. Only 21 percent of the farmers were water use efficient while the average water use efficiency was at 31 percent. The results further show that compulsory licensing enhances water use efficiency while all the three policy reforms (compulsory licensing, water pricing, WUA) have not had significant effects on water quality. However, the direction of correlations between the policy reforms, efficiency and quality are pointers towards better water management.

The water-economy nexus of different beef breeds at the abattoir and deboning plant
Maré F, Jordaan H & Mekonnen M

The relative high water footprint of red meat led researchers to urge consumers to either change their diets away from red meat consumption or to consume red meat products with lower footprints from different regions or production systems. As it is no easy task to change consumers from their proven ways the first above mentioned option are not really viable while the information to act on the second option are not readily available. This paper provide the water footprint and economic contribution information for processing different breeds of beef cattle at the abattoir and deboning plant in order to provide some of the needed information to inform consumers regarding different red meat alternatives. The water footprints and value added of different beef breeds are measured to calculate a new indicator, WFVA, that is the Water Footprint (WF) per unit of Value Added (VA) in order to measure the water use efficiency per unit of economic contribution. This indicator provides necessary information on the water-economy nexus of the processing plant. The results of the study found that the WF of different beef breeds is negatively and the VA positively correlated with the carcass weight. In the event where the abattoir decides to focus on the processing of heavier breeds the WF will decrease, the VA will increase and there will be an associated improvement of the WFVA. This means that the abattoir will improve its environmental stewardship and economic prosperity.

Traction power source availability for tillage and its effect on household food security of smallholder farmers in KwaZulu-Natal
Motokolo PR, Mudhara M & Chaminuka P

Input availability remains an impediment to poverty reduction and achieving food security in Sub-Saharan African countries. Timely availability of traction power is important in crop production, yet its availability is limited among smallholder farmers. The circumstances facing households influence their traction power choice. An understanding of the determinants of their choices and the effect of traction power availability on food security can allow policy makers to develop appropriate strategies and programmes to enhance the productivity of smallholder farmers. The study used stratified random sampling techniques to select 204 households who were surveyed from six villages from UKhahlamba Local Municipality, KwaZulu-Natal in South Africa. Three main tillage types that smallholder farmers use were tractor, animal power, and a combination of the two. Multinomial regression results identified household characteristics that influence the choice of traction power source for tillage. The study also evaluated the effect of traction power availability on consumption expenditure, as a proxy for food security. The results from the multinomial endogenous treatment effect model show traction power source affected consumption expenditure. Using a combination of mechanical and animal power showed a positive effect on consumption expenditure while using animal power negatively affected it. The results suggest that the traction power policies and programmes should be improved to enhance crop productivity and food security. Moreover, there is a need to look into the introduction of tillage power suitable for the land sizes that smallholder farmers operate.
Triticale as an alternative to milling wheat: The case of the Western Cape Province, South Africa
Terblanche F & Cloete PC

The decline in the profitability of milling wheat is amongst the challenges faced by wheat producers in South Africa. The decline in profitability is hampering the ability of wheat producers to remain financially viable and as a result, many producers have shifted their production focus to alternatives, which are believed to be more profitable. Producers in the Western Cape Province are, however, not that fortunate with the resource endowments that limit their options. Additionally, no attention has been given to the financial viability of alternatives for wheat production in the Western Cape Province. Therefore, this study examined triticale as an alternative crop. The financial viability of triticale compared to milling wheat was determined by using the Animal Products Requirements Optimised (APR OPT) model coupled with a budget analysis. Results from the APR OPT model in the form of demand and successive prices was used as inputs in the budget analysis to determine the financial viability of triticale compared to milling wheat. The results revealed no straight answer to the question of whether triticale could be considered a financially viable alternative to milling wheat. Although triticale reported a positive gross margin for the period under review, its financial viability compared to milling wheat will largely depend on the price of maize and milling wheat, respectively.

Willingness to pay for water connections in Windhoek, Namibia
Karuaihe S & Wandschneider P

The paper uses contingent valuation techniques (CVM) to estimate demand for private water connections in Windhoek, Namibia. Results show that consumers are willing to pay about N$58.00 in addition to their monthly water charge to get water connected to their homes. This amount falls within the range of N$20 to N$100.00 offered as ultimate bids and it also falls within the range of N$20 to N$85 paid by the households. Variables, such as income, contributions towards land payment, the number of people in a household and the distance walked to the water point have positive impacts on the households’ median willingness to pay (WTP) for water connections.
2. “A Comparative Analysis of the Human Agency of Member and Non-member Group Farmers: The case of Nkonkobe Local Municipality, Easter Cape, South Africa” by Awari MK, Aliber M & Mushunje A
5. “Agricultural Research and Development Data Rescue Initiative through Collaboration” by Mamabolo M, Gandidzanwa C, Chaminuka P & Makhura M
10. “Can Agriculture be Trusted as a Source of Employment in South Africa?” by Mukarumbwa P, Mlambo C & Mushunje A
13. “Determinants of Household Willingness to Pay for Water and Electricity in the New Settlements of Three Selected Villages of Moletje in Amanag Municipality of Limpopo Province, South Africa” by Cholo MS & Nkanoa MA
14. Determinents of Profit Efficiency Among Smallholder Crop Enterprises in the Eastern Cape Province of South Africa: A Translog Profit Function Approach” by Mujuru N
15. “Economic Implications of the Current Wheat Quality Standards: A Western Cape Case Study” by Naedzani Z, Ngwane C, Chaminuka P & Liebenberg F
16. “Economic Returns from Investment in Beef Cattle Improvement Research in South Africa” by Nevondo TT & Chaminuka P
17. “Efficiency and Efficacy in Government Interventions: Western Cape Agriculture as a Case Study” by Trokie DP, Kelly K & Mandondo S
18. “Estimating the Economic Contribution of Agriculture in the Former Homelands of South Africa” by Gwebu NN & Kirsten JF
19. “Factors Affecting Smallholder Farmers’ Perception Regarding their Use of Soil Conservation Practices: Evidence from farming at Qamata Irrigation Scheme, South Africa”
   by Ighodaro ID & Mushunje A

20. “Factors Contributing to Cattle Theft in the Eastern Cape Province: An application of Craggs Test”
   by van Rooyen FM, Lombard WA, Ogundeji A & van Niekerk HN

   by Ryan Jayne and Laluma Traub

22. “How has Consumer Education Influenced Pork Consumption in South Africa? Instrumental Variable Regression Analysis”
   by Lubinga MH, Mazibuko N, Ngqangweni S & Balarane A

   by Mbatha CN

24. “ICT Utilisation by Agro-Processing Industries in South Africa: Implications for Growth and Employment”
   by Lefophane MH & Kalaba MW

25. “Identifying Employment Growth Potential in the Western Cape Agri-Processing Sector”
   by Murdoch JP, Wallace M & van Niekerk P

   by Abidemi A, Wegayehu F & Mmatlou K

   by Kadwa, M & Nicholson R

28. “Labour Dynamics in Climate and Techno Reliant Small Scale Maize Production in the Eastern Cape Province, South Africa”
   by Kambanje A, Ngarava S, Mushunje A & Taruvinga A

   by Mamabolo M

   by Mdlulwa Z, Masemola M, Chaminuka P, Nevondo TT & Madyo S

31. “Operational and Perceptual Analysis of Food Losses and Waste in the Table Grape Export Supply Chain”
   by Louw L, Jordaan D & Korsten L

32. “Share-Milking as an Alternative Business Model for the Successful Establishment of Black Commercial Dairy farmers in South Africa”
   by Strydom JD & Louw A

33. “Staple Food Consumption Dynamics in South Africa”
   by Vermeulen H, Louw, MH & Schönfeldt HC

34. “Strategies for Smallholder farmer Access to Dynamic Fresh Produce Value Chains: An Agent-Based Approach”
   by Matebeni F & Ngqangweni S

   by Arwari MK, Mushunje A & Aliber M

36. “The Economic Impact Study for the ARC Citrus Breeding Programme, The Internal Rate of Return”
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   by Kadokera D & Kirsten JF

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45. “The Role of Intra-Regional Fish Trade in Improving Food and Nutrition Security in Africa”
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46. “To What Extent are Black farmers Empowered in the South African Potato Industry?”
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Quick Facts

25 years of excellence in producing scientific solutions to Agricultural challenges

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773 Research Staff Complement

428 Scientific Publications 2016/17

87 Technologies released under licence in the past 10 years

248 094 doses produced

Vaccines

No of participants in Small-scale Livestock Improvement Scheme

8400

340

Number of Students in Professional Development Programme

Scientific Publications

ISSN

R&D Footprint

25 years of excellence in producing scientific solutions to Agricultural challenges
MANDATE
The Agribusiness Development Agency (ADA) is a catalytic vehicle that facilitates the growth of a strong, transformed, diversified, dynamic, competitive and sustainable agro-processing industry in KwaZulu-Natal, in collaboration with the Department of Agriculture and Rural Development (DARD). It serves as a catalyst for agribusiness development in the province, through focussing on projects that are catalytic in nature and have the following attributes;

• Benefits beyond direct beneficiaries
• Economic spinoffs
• Embrace the whole value chain
• Speed up development in the whole geographical area

VISION
A diverse, deracialised, prosperous and sustainable agribusiness sector in KwaZulu-Natal.

MISSION
The ADA strives to promote, establish, facilitate and support the growth of black owned and managed agribusinesses along agricultural value chain in KwaZulu-Natal through partnerships with individuals, communities, private sector and other public sector institutions in order to achieve a transformed agribusiness sector in the province.

PRODUCTS & SERVICES
We have developed products and services according to broad areas in supporting agribusiness development;

• PROJECT MANAGEMENT
We manage the implementation of high impact agro-processing projects in KZN from planning to handover. We also act as an implementing agent for complex agribusiness project on behalf of other government departments in the province;

• AGRIBUSINESS FACILITATION SERVICES
These include connecting agribusiness entrepreneurs to information, innovations, technologies and markets;

• INFRASTRUCTURE DEVELOPMENT
We manage the development of agro-processing infrastructure and investment in physical capital;

• KNOWLEDGE AND INFORMATION SERVICES
These include design and dissemination of agribusiness models, agribusiness training facilitation and business leadership development;

• FINANCIAL RESOURCES MOBILISATION
We package projects and assist with access to development finance, public and private funding as well as investments.
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