



# Innovation and inclusion in South Africa's citrus industry

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## 1. Introduction

South Africa’s citrus industry stands out, locally and internationally, in terms of its export-led growth and employment creation. South Africa is the second largest citrus exporter in the world and accounts for 10% of global exports. Two thirds of citrus production is exported as fresh fruit, generating 95% of total citrus earnings per annum and supporting substantial employment creation. Export of fresh fruit happens alongside supply into local fresh fruit markets and fruit processing. The local market is more open, with supply to fresh produce markets, hawkers and supermarkets. Citrus processing largely takes the form of fruit juices. While this accounts for a minority of the produce and utilizes lower value fruit, value is added in the processing.

The export-led growth has been built on investments and coordination to support shared capabilities and upgrading over time. Producing high quality fruit for export markets involves major innovations and medium-term investments – from inputs through growing, to packing, certification and marketing. These include, the development of cultivars and the supply of citrus trees by nurseries; and the application of technologies and digitalisation of production, packing and certification processes necessary to realise export market opportunities.

The institutional arrangements and coalition of interests are crucial to appreciate why the South African citrus industry has performed so well, including in relation to other fruit industries in the country. Underpinning the impressive performance is the role of the Citrus Growers Association (CGA), along with government, which has coordinated and led on the long-term measures for export success. Leveraging resources from the compulsory levy on growers’ exports, the CGA has invested in shared services and support for growers including research and technical capacity. The CGA’s role has included shaping markets through regulation and creating competition in key inputs such as cultivars and agrochemicals.

The CGA has also put in place initiatives to increase participation and inclusion of small and black farmers into citrus production and exports. Citrus provides examples of some successful black farmers in the otherwise poor overall outcomes from South Africa’s land reform to transfer land back to the communities from whom it had been taken under colonial rule and then apartheid.

Major challenges remain for small and black farmers within South Africa in being able to compete, upgrade their capabilities and succeed in export markets. Factors include the role

of larger businesses at different levels, such as those holding rights to new citrus varieties, and in marketing. There is also a range of issues relating to land reform including the slow pace at which it has proceeded, the granting of title deeds, and support to build long-term capabilities.

The paper identifies and analyses key decisions of the CGA including political economy factors in the development of the citrus sector and how these shape opportunities for inclusion and upgrading. These include the evolution of key interests and how these have affected the institutions providing support as well as the ways in which government policies have shaped, and been shaped by, the industry's development.

The working paper is structured as follows: Section 2 provides a background to the study and an overview of the industry. Section 3 describes the methodology, and Section 4 assesses the developments of the main value chains over the period from the mid-1990s to 2019. Drawing from in-depth interviews, sections 5, 6 and 7 then assess the key concerns of inclusion, innovation and upgrading, and the political economy and role of institutions. Section 8 concludes.

## **2. Background and performance of the citrus industry**

While the focus of the paper is the post-liberalisation era, it is important to discuss briefly the sector's development under apartheid due to its bearing on the present day organisational and institutional structures of the citrus industry.

### **2.1 Evolution of the citrus industry**

The present structure of the citrus industry is as a result of an evolutionary process which began with South Africa's first exports to Britain in 1907. From the first exports in 1907, the volume of exports grew rapidly. Over this period of high export growth, the citrus industry was represented by the South African Cooperative Citrus Exchange which had co-operatives as members organized around packhouses (Cole, 1954; Mather and Greenberg, 2003; Mather, 1999). Under the industry arrangements during apartheid, as with other agricultural sectors, the packhouses were owned and run by co-operatives of the farmers. The co-operatives were closely linked with the government-supported control boards.

With the advent of World War II in 1939, South Africa's citrus industry started experiencing difficulties with exporting citrus to its main market in Britain (Cole, 1954; Mather and Greenberg, 2003; Mather, 1999). The single-channel marketing system was then established under the terms of the Marketing Act of 1937. Under this system, a Citrus Board was established and given power to control distribution, marketing and prices of citrus in South Africa and overseas (Mather and Greenberg, 2003). Upon establishment in 1940, the Citrus Board elected Outspan as the overseas marketing and distribution agent and all South African citrus was marketed under the Outspan brand (Mather, 1999).

Outspan was central in developing markets in the EU, Japan, and other countries. The citrus industry invested considerable funds in the construction of specialised fruit terminals at the major ports. In the 1980s, Outspan was also able to secure bargaining power over shipping schedules and port facilities as they made substantial investments to the Durban and Port

Elizabeth ports (Mather, 1999). Outspan's relationship with the parastatal railway company – the South African Railways and Harbours Department afforded the citrus industry abilities to negotiate favourable freight rates, and the parastatal made changes to its infrastructure to better suit the needs of transporting citrus (Mather, 1999).

In 1973, the Outspan Citrus Centre was formed to conduct research in response to increasing problems with fruit quality and provide extension, owing to the very limited number of citrus cultivars that were marketed. Outspan established a research and extension division comprised of five departments: Production Research, concerned with on-farm production practices including irrigation techniques and fertilizer application methods; Extension Services, which transmitted practices and techniques developed in Production Research to farmers producing for export; Citrus Improvement Programme, to ensure that farmers plant high-quality and disease-free trees; Outspan Laboratories, whose main function was to advise on the fertilizer needs of trees by examining soil and leaf samples; and Operations Research, which focused on the post-harvest transport and treatment of citrus. Research efforts concentrated on developing techniques to minimise fruit damage and decay on its way to overseas markets (Mather and Greenberg, 2003).

### ***Deregulation of agricultural markets and institutional changes in citrus industry bodies***

In 1997, all fruit industries in South Africa were de-regulated in terms of the new Marketing of Agricultural Products Act (No.47 of 1996). The Act provided for the dissolution of the control boards along with single channel marketing arrangements in almost all agricultural products (Sandrey and Vink, 2008; Mather and Greenberg, 2003).

The de-regulation of the citrus industry led to the abolition of the Citrus Board and the restructuring of the Citrus Exchange, which was converted to a public company named Outspan International in 1996 (Mather, 1999; Mather and Greenberg, 2003; CGA Annual Report, 2007). Most of the co-operatives converted into privately owned companies. At this point, anyone could apply to register as an export agent. The immediate and most dramatic effects of de-regulation on the industry were that: grower levies were no longer compulsory; single-channel exports were replaced by multi-channel exports; and industry structures and services had to be transformed.

Around the same time, just after de-regulation, growers formed the South African Citrus Growers Association in 1997 to ensure market access to export markets and to conduct research. The CGA activities were initially funded by voluntary levies paid by the growers and set at 32 cents per 15kg carton of exports. In 2001, as not all growers were paying the voluntary levy, the CGA applied to the government for institution of a statutory levy on all export citrus, which was approved and implemented from 2002, to fund research and market access.<sup>1</sup>

The CGA has since established a number of companies to engage in research and capacity building for the sector. These comprise of not-for-profit companies, providing shared services and support for growers, and companies run on a commercial basis selling products and services to earn returns which are re-invested back into the companies. In 2001, the Outspan

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<sup>1</sup> <https://pmg.org.za/committee-meeting/310/>

Citrus Centre was taken over by the CGA and the name changed to Citrus Research International. In 2002, the Outspan Foundation Block was also taken over by the CGA and in 2005, the Citrus Academy was formed to develop a quality learning system for the citrus industry, and to improve access to skills development for all participants in the citrus industry (CGA Annual Report, 2007).

### **Land reform**

The historical legacy of South Africa necessitated land reform which began in 1995 under the leadership of the African National Congress upon taking political office in 1994 as South Africa's first democratically elected government. The ANC embarked on initiatives aimed at addressing the historical injustices of land dispossession and to redistribute rights to land as a means to remedy past racial injustices and lay the basis for more equitable development (Department of Land Affairs, 1997; Kepe and Hall, 2016; Presidential Advisory Panel on Land Reform and Agriculture, 2019).

The pace of land reform has been slow, characterized by continued ownership of land by the white minority, as well as poor re-distribution of state land. The state has delivered 8.4 million hectares of land as part of government's land reform programme between 1994 and March 2018 (Department of Rural Development and Land Reform, 2019). This progress is estimated to amount to under 10% of all commercial farmland, over twenty-three years, compared to the initial target of 30% by 2014 (Presidential Advisory Panel on Land Reform and Agriculture, 2019). Key challenges with the land reform programme include poor implementation, with slow transfer of title deeds, poor quality of post-settlement support, poor capability of the State as characterized by deficient coordination, and limited and misaligned allocated resources.

### **2.2 Industry performance**

The total area farmed for citrus has increased from 56,338 hectares in 2010 to 86,808 hectares in 2019. The expansion in the hectares planted has been in the main citrus growing regions of Limpopo in the north of the country, and the Eastern Cape and Western Cape – accounting for ~87% of total hectares planted in the country (Figure 1). In each of these provinces the area planted has roughly doubled over the decade since 2010. The expansion of hectares in the Western Cape was largely because of farmers moving out of wine grapes into citrus.<sup>2</sup> The growth in hectares in Limpopo is mostly around a massive new area that has been planted to citrus in the Burgersfort and Ohrigstad areas in Lydenburg. These areas never used to plant citrus before or had a few small orchards but have been developed into a massive area with citrus plantings.<sup>3</sup>

However, the area planted in Mpumalanga, where conditions are also good, has declined alongside KwaZulu Natal. The decline in hectares observed in Mpumalanga and KwaZulu Natal has to do with the type of citrus that can be grown there. Mpumalanga and KwaZulu Natal planted mostly grapefruit. Of the four citrus sectors<sup>4</sup>, grapefruit performed the worst. As a

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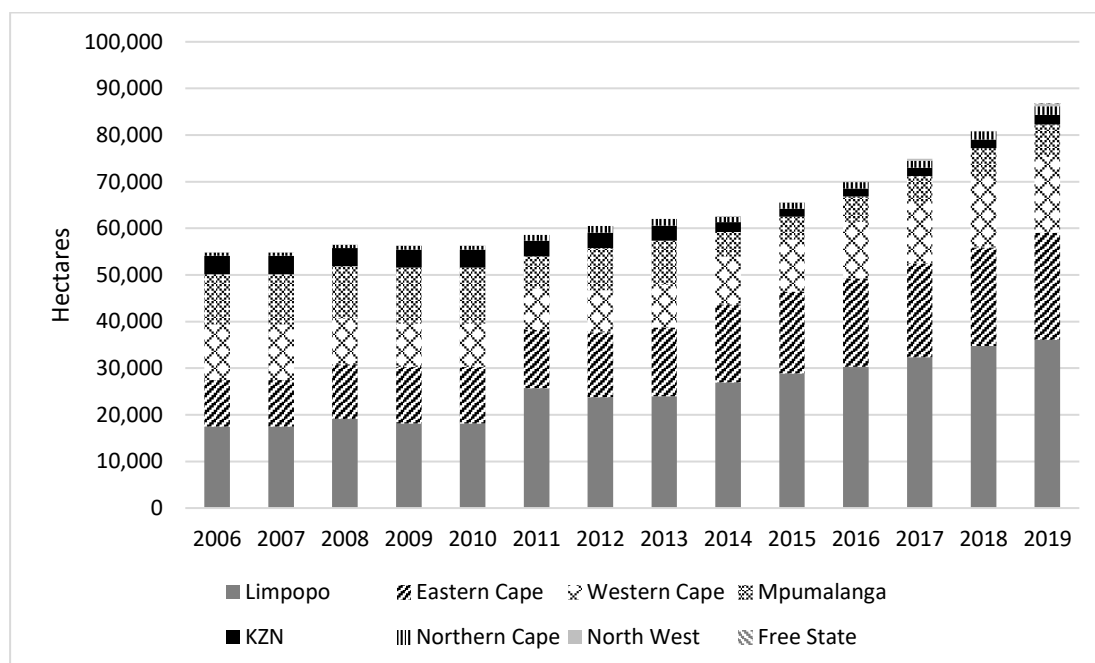
<sup>2</sup> Interview with growers' industry association, 17 March 2021

<sup>3</sup> Interview with growers' industry association, 17 March 2021

<sup>4</sup> Lemons and limes, soft citrus, oranges and grapefruit

result, farmers took out grapefruit ten years ago and replaced it with sugarcane and macadamias, to a large extent.<sup>5</sup>

**Figure 1: Citrus production areas**



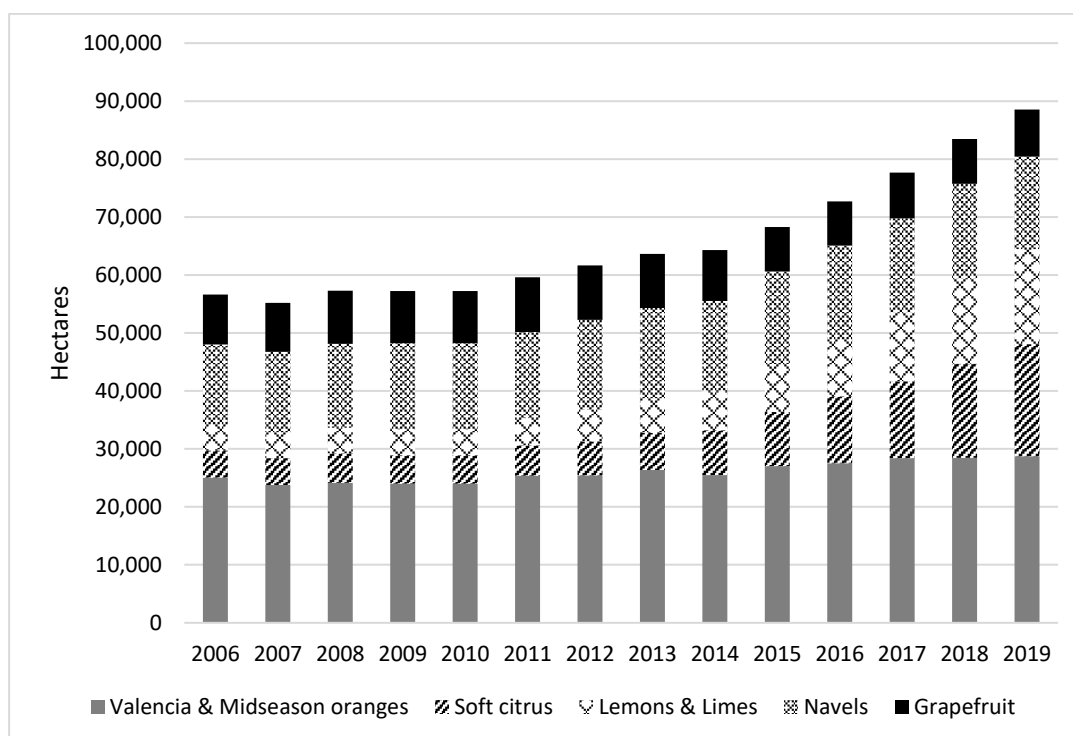
Source: CGA Key Industry Statistics (2009–2020); CGA Annual Reports (2007–2008)

The biggest change in the area planted by variety is the growth in lemons and limes and soft citrus, in each of which the area planted has almost quadrupled from 2010 to 2020 (Figure 2). Growth in soft citrus plantings has happened largely in the Western Cape, Eastern Cape and Limpopo which account for 40%, 30% and 24% of total soft citrus production in the country. The increased production is also due to more intensive farming and effective use of the land with investment in high-yield cultivars and on-farm production technologies. The growth of the capabilities of cultivar companies with international linkages, and nurseries supplying trees to growers, is a key part of the picture. These trends have happened alongside a slow growth in plantings of oranges (including Valencias), grapefruit and navels, which have remained almost the same over the period. This is largely in Limpopo province as the main Valencia and grapefruit growing area accounting for 59% and 56% of production respectively. Eastern Cape is the main navel growing province accounting for 40% of production followed by Limpopo and Western Cape with 26% each.

<sup>5</sup> Interview with growers' industry association, 17 March 2021



**Figure 2: Area planted per citrus variety<sup>6</sup>**

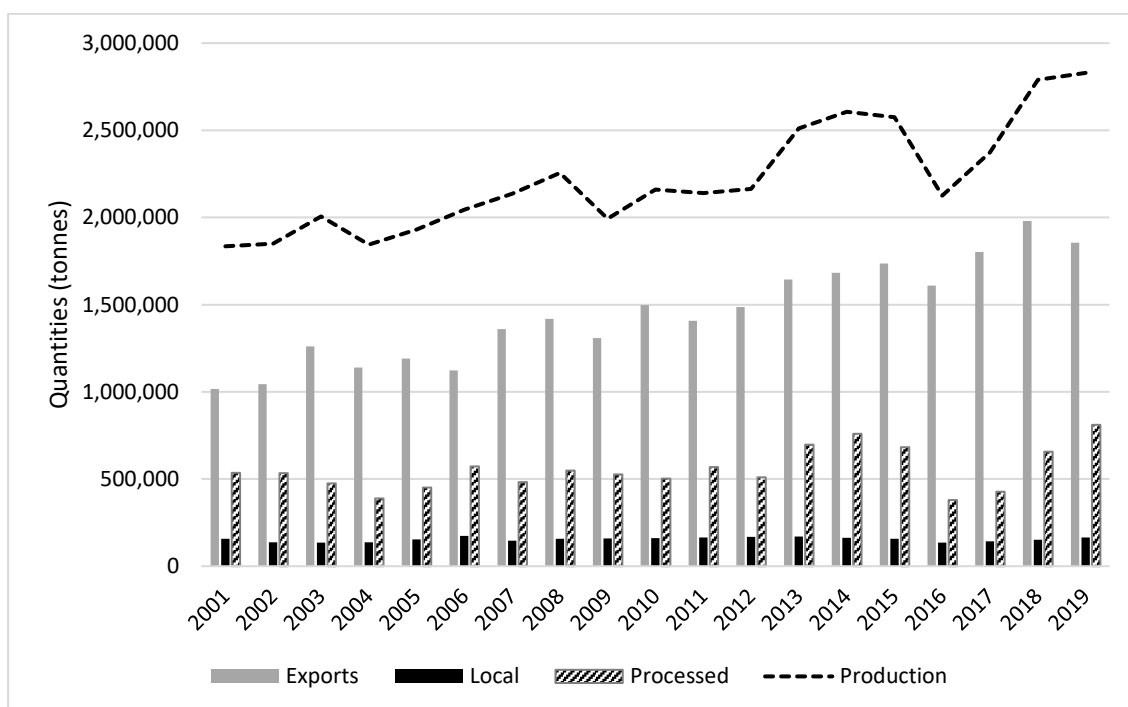


Source: CGA Annual Reports

The majority of citrus production is exported as fresh fruit, and this has provided the basis for the industry’s strong growth in earnings over the past two decades (Figure 3). Of total citrus production, the share of fresh fruit sold in export markets grew substantially from 55% in 2001 to 65–70% at the end of the period. The quantities of fresh fruit sold in local markets has remained relatively constant, which has meant its share has declined in total production from 9% to 5% over the same period (Figure 3). The share of fruit sold for processing tends to oscillate as it depends on what happens in the fresh fruit market, with an average share around 25% of total production.

<sup>6</sup> Hectares planted per citrus variety also includes Swaziland and Zimbabwe, which operate under the Citrus Growers’ Association of Southern Africa. However, the area planted for the two countries is negligible.

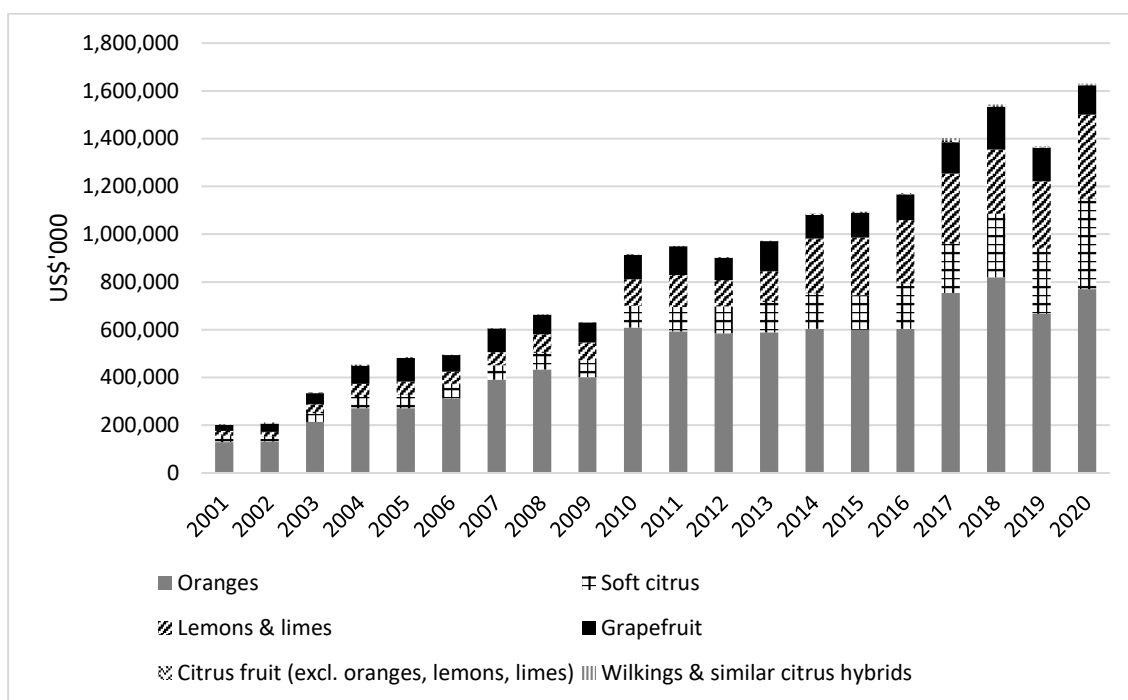
**Figure 3: Citrus production, sales into fresh fruit markets and processing**



Source: CGA Key Industry Statistics sourced from DALLRD

The growth in export earnings is due to both increased production and higher prices with the exception of 2019. Despite increases in production, export earnings decreased due to a drop in export prices across all fruits in 2019. In terms of exports, there are two different periods. From 2001 to 2010, the export growth was driven by oranges (Figure 4). From 2010, the earlier growth in planting of lemons and limes and soft citrus, observed above, underpinned export growth. Specifically, export earnings from soft citrus and lemons and limes nearly quadrupled from US\$202 million in 2010 to US\$730 million in 2020. This shift reflects two critical developments. First, the planting of trees to respond to changing international preferences. Second, the growing sophistication in capabilities in terms of the cultivars being planted, compliance with phytosanitary standards, infrastructure in cold chain and logistics, and marketing in the ‘industrialisation of freshness’ (Cramer and Sender, 2019).

**Figure 4: South Africa's citrus exports**



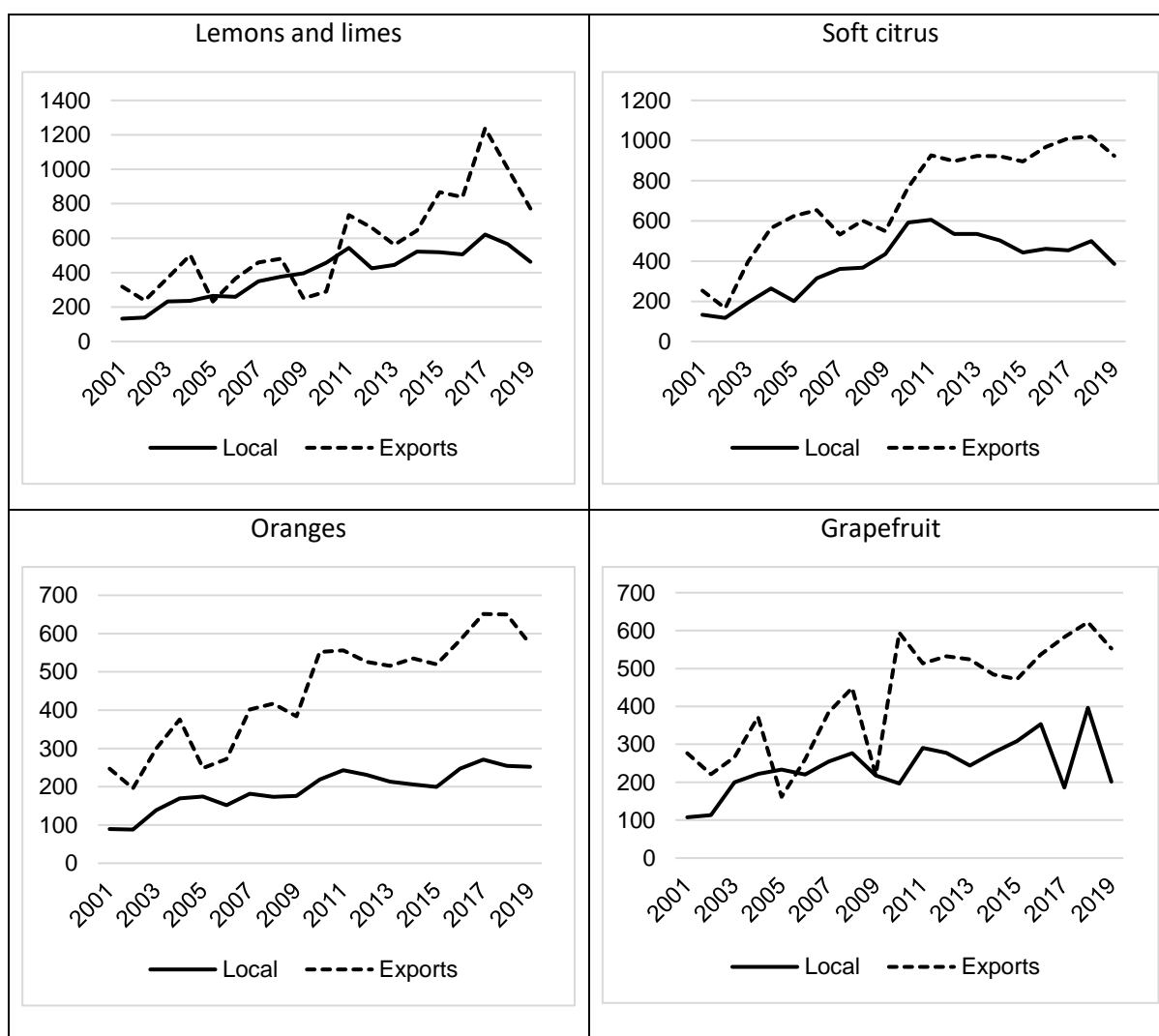
Source: ITC TradeMap

The export prices of all citrus fruit have increased relative to local prices, especially in the last decade (reflecting the higher quality requirements of export markets), to be around double local prices by 2019 (Figure 5). Prices of lemons and limes and soft citrus are also significantly higher than the prices of oranges and grapefruit, in both local markets as well as in export markets. This has stimulated the additional areas being planted with these fruits (Figure 2 above).

However, prices change depending on supply and demand, with evolving preferences for different cultivars which impact on the negotiations and availability of fruit in the market.<sup>7</sup>

<sup>7</sup> Interview with large exporting farm, 29 June 2020

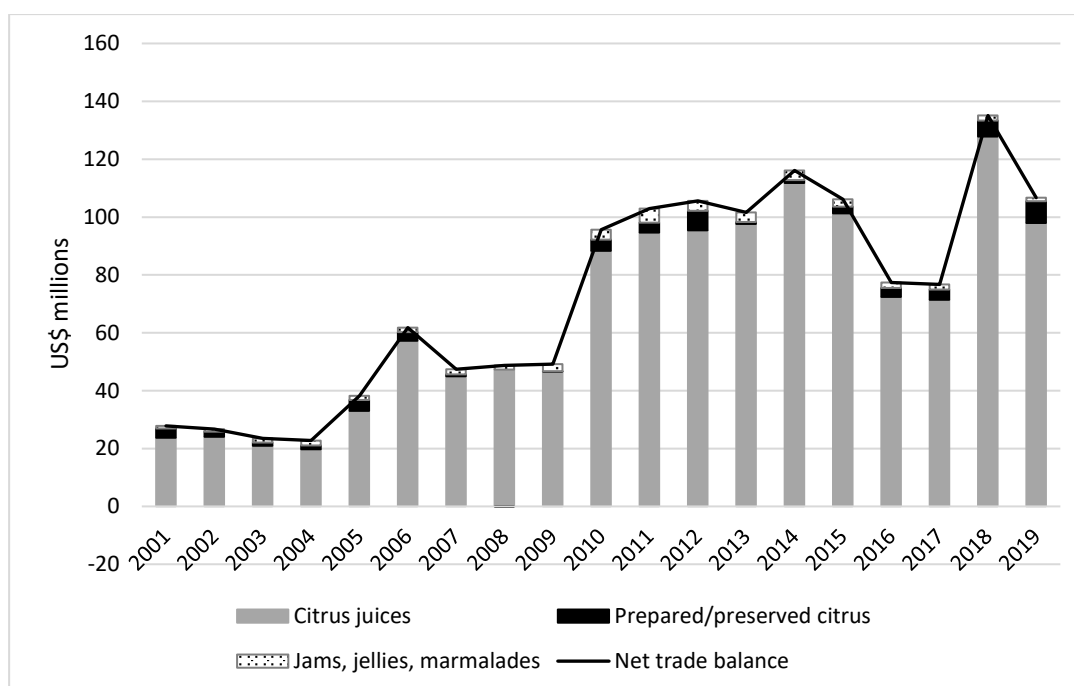
**Figure 5: Average export and local fresh citrus prices in US\$/ton (2001–2019)**



Source: CGA Key Industry Statistics sourced from the Department of Agriculture, Land Reform and Rural Development (DALRRD). Local average prices are based on sales at the 20 major fresh produce markets in the country; Export prices are sourced by DALRRD from Customs and Excise and are Free on Board (FOB) prices. The Rand/US dollar exchange rates were sourced from the South African Reserve Bank and are Middle rates.

Growth in production of fruit has supported growth of exports of related processed products, largely citrus fruit juice (Figure 6). While net exports have grown between 2001 and 2018, these depend on supply of raw material from the fresh fruit side, which is quite variable.

**Figure 6: Processed citrus trade balance**



Source: ITC TradeMap

The citrus industry creates substantial employment across the different activities in the value chain from growing, packhouses, marketing and logistics, and upstream in tree nurseries and other input supply. In 2019, the growing and packhouse activities employed an estimated 112,000 workers, with an additional 1,650 workers at the nursery level contributing around 12% to total employment in agriculture.<sup>8</sup> Estimated employment in citrus production has grown by more than 50% over the past decade.<sup>9</sup> Moreover, there are substantial multipliers into input supply and services such as logistics. Citrus also has links into processed products such as concentrates and fruit juices. Taking these into account, we estimate conservatively that the value chain accounts for around 250,000 jobs in 2020, with continued growth being projected (Chisoro-Dube and Roberts, 2021).

### 3. Methodology

The paper draws from literature and sector data, thirty-seven interviews conducted specifically for the IIAP project in 2019 and 2020, meetings convened for the project to engage with stakeholders, and a review of policy documents. It also builds on insights from recent

<sup>8</sup> Total employment in agriculture in 2019 was 974,292 (Quantec). The citrus employment numbers are based on estimates from the Citrus Growers' Association on employees per hectare, growth in hectares planted, and employment in packhouses per tonne packed for local and export markets. Note that citrus production has become more intensive on a per hectare basis implying that this estimate is conservative, while on the other hand, packhouses have become more automated. Employment at the nursery level is based on estimates of annual production of trees for approximately 33 certified citrus nurseries as of 2018.

<sup>9</sup> See footnote 1 above.

studies undertaken by CCRED, including interviews conducted for these between 2017 and 2019. These include interviews relating to wider issues within fruit and agro-processing which provide important context for the developments in citrus.

### **3.1 Profile of interviews conducted**

#### ***Composition of interviewees in the value chain and geographical spread***

The interviewees comprised of cultivar development and management companies, nurseries, input suppliers, growers and packhouses, marketing companies, fruit processors, government agricultural departments and industry associations across the different fruit-growing provinces in the country. The majority of growers and large concentrate producers are located in the Limpopo and Eastern Cape provinces, although large growers and concentrate producers have farms and processing plants across the different fruit-growing regions in the country. The majority of the secondary processors – juice-mixing companies – and companies involved in higher quality products such as freshly squeezed juices and prepared fruit products are located in Gauteng.

Upstream in the value chain, we interviewed seven input suppliers, including nurseries and cultivar development companies, production inputs and equipment suppliers and a water board that distributes water for agricultural purposes.

There were interviews of fourteen entities at the growing level. These included four large producer-exporter companies that also own packhouses and are involved in export marketing, thus providing information from growing through to packing and exporting.

The majority of the interviews of growers were with black farmers which provided information on entry and inclusion into citrus farming and exports. These farmers had received land through different means related to land reform – redistribution and restitution. In some cases, the government bought land for restitution and transferred it to a community group of beneficiaries, which engaged in production with strategic partners who are large producer-exporter companies in the industry. Other operations are characterized by a group of worker beneficiaries that received land from the government or previous white farmers and they operate under a strategic partner who is responsible for the day-to-day management of the farm. The last group comprises of individual black farmers carrying out farming operations on their own. Not all black farmers are small in terms of the size of the farms because some communities or joint ventures have large tracts of farmland (although generally much of this is not under citrus).

At the downstream processing level, we interviewed eight companies and the processing industry body. These comprised of three primary processors that convert the fresh citrus fruit into concentrate, and these are large companies. Lower down the value chain, we interviewed five companies involved in freshly squeezed juices and fruit preparations, canning and juice-mixing for sale to final consumers. These are small and medium companies.

To understand the government's role in the value chain, we interviewed three provincial and district departments in agriculture and the Industrial Development Corporation – which provides financing to beneficiaries of land reform.

### ***Criteria for selection of interviewees***

A combination of initial key informant primary interviews and desktop review was used to map key players and activities in the value chain. This informed the purposive sampling of firms for interviews (see Appendix for list of interviewees). While the focus of the project is on small and medium-sized businesses, in the South African citrus industry, the majority of small and medium-sized producers enter at the grower level. Furthermore, small and medium-sized citrus growers are largely black growers while the established commercial farmers are the white growers. Given the integrated nature of the value chain from input supply to marketing, we interviewed representatives at different levels along the value chain. These included input suppliers (especially tree nurseries), fruit marketing companies and government departments in agriculture.

## **3.2 Design of interviews**

### *Topics covered*

Semi-structured interview guides were employed, centring on the following themes:

- i. Understanding key activities/processes of the entity in the value chain
- ii. Understanding the structure of the industry at each stage of the value chain (key players, large and lead firms within the value chain, governance, and competitiveness in the value chain)
- iii. Use of technologies and process innovation
- iv. Access to markets and competition
- v. Challenges faced by players at different levels of the value chain and in the industry as a whole
- vi. Role of government in the industry including government support

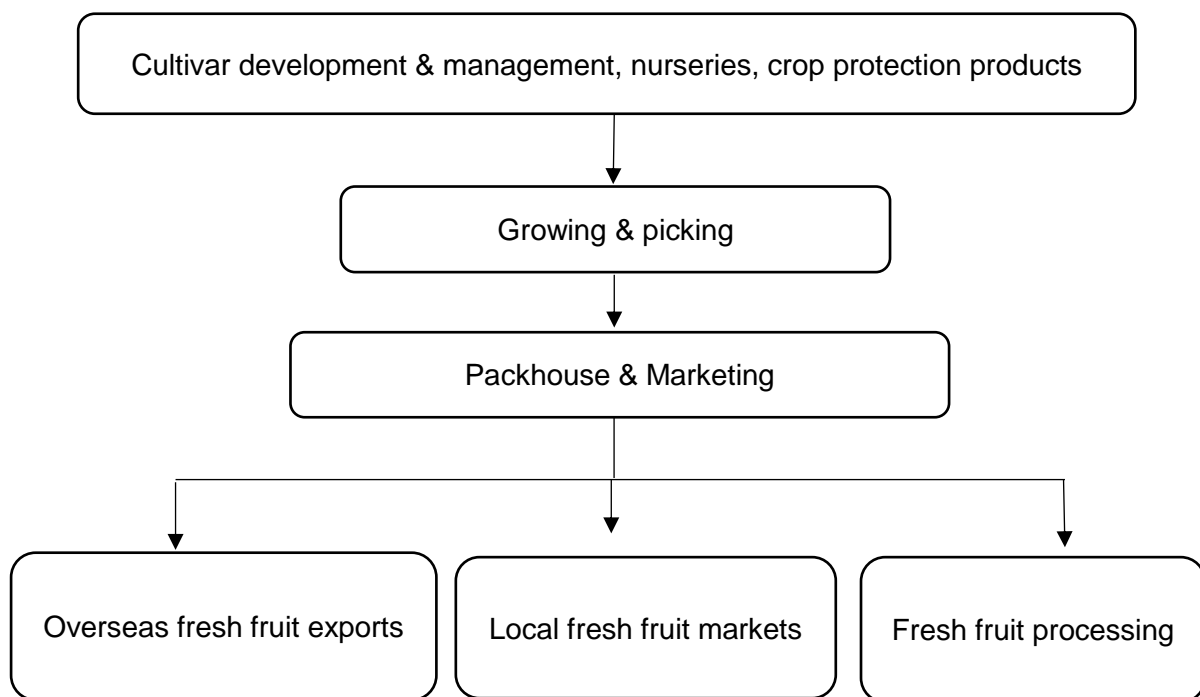
### ***Explanation of challenges faced***

The onset of Covid-19 coincided with the time we began conducting fieldwork interviews. This meant that we had to conduct telephone interviews as opposed to physical face-to-face interviews. Face-to-face interviews would have been more effective in terms of connecting with the interviewees and provided more space and time to probe issues further. Online interviews were also limited to interviews with companies or growers with websites and contact details. This was a key challenge particularly for black growers in the rural parts of the country. Further, the crisis meant that industry stakeholders were generally pre-occupied with dealing with the Covid-19 implications.

#### 4. Mapping value chain development, linkages and governance over time

The value chain mapping identifies the main activities and segments in the chain, the linkages between them and how the chain overall is governed. The main activities or segments in the citrus value chain are cultivar development, nurseries and input suppliers, growers, packhouses, markets (local and export) and processing (Figure 1). Critical to the South African industry are the linkages and long-term investments which ensure upgrading and market access to export markets.

**Figure 7: Overview of the citrus industry**



Source: Compilation by author

In terms of value generated along the value chain, the production and picking accounts for a relatively small proportion of the share of the overall value at 11.5% of the total for exported product, exceeded by packing at 13% (Table 1). The sales functions account for the largest share which, together with export agent commissions, levies and receiving, is more than half of the total. This is consistent with the much higher value from export markets, which requires the cold chain, logistics and marketing to realise this value. Notwithstanding these costs, the prices received by local producers for exported fruit are substantially higher than for local sales.



**Table 1: Value chain breakdown for exported citrus**

Activity	Proportion of total costs
Production and picking	11.5%
Packing	13%
Transport	1.5%
Harbour handling	3.5%
Shipping	18.5%
Receiving and Transport	13%
Sales	30%
Other costs <ul style="list-style-type: none"> <li>- Commission of the export agent and the importer</li> <li>- Various levies and inspection fees</li> </ul>	9%
<b>Total</b>	<b>100%</b>

Source: Citrus Academy Citrus Resource Warehouse

The rapid growth of the citrus sector observed in Section 2.2 has been accompanied by substantial changes in the value chains. We analyse the implications of the evolving value chain relationships in terms of innovation, upgrading, inclusion and the overall governance and policy issues in the subsequent sections.

The export of fresh fruit is a highly governed value chain with regard to cultivars, phytosanitary standards, logistics and marketing. This requires coordination and investments to build capabilities to meet the demands of export markets. Such capabilities include development of new and improved cultivars, propagation of disease-free citrus trees for supply to growers, improvement of farming and production methods. The local market is more open, with supply to fresh produce markets, hawkers and supermarkets. The value chain for processed citrus products is characterised by large economies of scale in production with supplies into local and export markets.

#### **4.1 Development of cultivars**

The cultivar development companies are at the apex of the chain. They source cultivars internationally and conduct research and development to breed improved varieties according to specific characteristics such as resistance to diseases and pests, taste, visual appearance, shelf life, seasonality, yield, climatic conditions and soil-type suitability. South Africa has a few

citrus cultivar companies with the leaders being Citrogold South Africa and Stargrow. Citrogold South Africa is by far the largest, with the majority of new cultivars.<sup>10</sup> Cultivar companies have a degree of market power due to the rights they have on protected varieties.

The cultivar companies import varieties and also develop them locally with significant investments made in the process. Varieties are developed in three ways: conventional plant breeding (also called crossbreeding); forced mutations using radiation; and identifying natural genetic mutations in the orchards. Conventional breeding takes a long period and not many institutions or breeders in South Africa have the finance and time to invest in crossbreeding programmes.

Growers are charged royalties per tree and percentage royalties on export boxes sold in order to access protected varieties. Some protected cultivars also come with marketing terms and restrictions. These include limited plantings and/or a limited number of exporters handling the fruit to maintain high prices in the market.

#### **4.2 Production of citrus trees and input suppliers**

After a cultivar is released, nurseries propagate the trees and supply to growers. Cultivar companies are vertically integrated with nurseries. They work closely with nurseries because these are involved in the commercial production of trees and help to market the cultivars. There are around thirty certified citrus nurseries supplying citrus trees in South Africa including the Southern African region. The nurseries in the north also supply into Botswana, Zimbabwe and Namibia where citrus production is growing.

Nursery operations have been growing strongly in line with overall production growth. And, for example, one major nursery was fully booked with orders at the end of 2020 right up until September 2022.

Closely linked to nurseries are companies that supply crop protection compounds to the citrus growers including herbicides, insecticides, fungicides, plant growth regulators, and adjuvants, which are meant to facilitate yield and quality.<sup>11</sup> The structure of supply of crop protection products is made up of wholesale, distributors, and a network of commission-based agents that sell directly to farmers. At the wholesale level, the main suppliers include: Villa Crop Protection; United Phosphorus Ltd (UPL); Aristo Bio-tech and Lifescience Limited; Bayer Crop Science, which includes a merged entity with Monsanto; Syngenta; and BASF. There is also a grouping of about thirty smaller suppliers in the country. The wholesale level supplies to the retail market, which is represented by approximately twenty distributors or dealers in the country. These dealers include AECI Plant Health (also known as Nulandis), Laeveld Agrochem and Venchem.<sup>12</sup>

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<sup>10</sup> Interview with growers' industry association, 17 March 2021

<sup>11</sup> Interview with crop protection compounds supplier, 20 August 2020

<sup>12</sup> Interview with crop protection compounds supplier, 20 August 2020

### 4.3 Citrus growers

The majority of businesses and employment are at the growing level of the value chain. Production of citrus in South Africa is in the hands of around 1,400 commercial farmers of varying farm sizes who grow primarily for the fresh export markets<sup>13</sup>, along with around 145 black citrus growers, around half of which export (Citrus Growers Development Company (CGDC), 2020). Of the total area planted, the black growers accounted for 8,103 hectares in 2020 (or just under 10%), with an average farm size of 56 hectares (CGDC, 2020).

The growers are relatively unconcentrated.<sup>14</sup> For example, voting in the CGA (such as on the levy) is weighted by the number of export cartons and decisions require two-thirds of the grower votes. As the industry is not very concentrated this requires agreement by a large number of the entities.<sup>15</sup>

In order to export, a farm needs to comply with requirements and sanitary and phytosanitary standards of the importing countries including other export documentation. These include Global GAP certification<sup>16</sup>, Sustainability Initiative of South Africa (SIZA) certification<sup>17</sup>, compliance with labour laws including basic conditions of employment and employment equity, and food safety requirements.<sup>18</sup> The processes for exporting are administratively intensive. As a result, the large exporters have grown their administration staff dedicated to taking care of all export requirements, which a small grower finds very difficult to do. This impacts on the time, investment and expertise required to reach the point of being export-ready, including for relatively young black growing businesses.<sup>19</sup>

Furthermore, with production dependent on weather conditions, farmers are experiencing frequent droughts and increased prevalence of pests and diseases. These include the greening disease which causes fruit to ripen on the inside whilst still green on the outside. In some cases, the fruit colours very late and some fruit ends up over-ripe and not fit for export.<sup>20</sup>

Recurrent and prolonged droughts mean farmers are experiencing long-term lower dam levels, rivers and groundwater boreholes running dry during the year or lower groundwater tables creating the need to drill deeper into the ground. Water restrictions have been imposed especially in the Eastern Cape region. The region has experienced two prolonged droughts – in 2015/16 and 2019/20, which saw rivers dry up and the dams' water levels drop.

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<sup>13</sup> See [www.cga.co.za](http://www.cga.co.za)

<sup>14</sup> Interview with growers' industry association, 17 March 2021

<sup>15</sup> Interview with growers' industry association, 17 March 2021

<sup>16</sup> GLOBAL GAP's roots began in 1997 as EUREPGAP, an initiative by retailers responding to consumers' growing concerns regarding product safety, environmental impact and the health, safety and welfare of workers and animals. These retailers came up with a solution to harmonise their own standards and procedures and develop an independent certification system for Good Agricultural Practice (GAP). These standards help producers comply with Europe-wide accepted criteria for food safety, sustainable production methods, worker and animal welfare, and responsible use of water, compound feed and plant propagation materials.

<sup>17</sup> Sustainability Initiative of South Africa (SIZA) is a South African ethical and environmental standard aligned to global best practices to support ethical and sustainable trade. Formalised in 2016, SIZA helps growers to comply with ethical labour practices. This standard is a response to the need to provide retailers and their consumers with assurances of fair labour practices and environmental conditions in their supply base.

<sup>18</sup> Interviews with large exporting farms, 23, March 2020; 29 June 2020; 20 July 2020

<sup>19</sup> Interview with growers' industry association, 17 March 2021

<sup>20</sup> Interviews with large exporting farms, 23 March 2020; citrus nursery, 10 September 2020

For example, the Kouga Dam in Gamtoos Valley in the Eastern Cape – a key water source for farming saw water levels drop to below 7% in 2020/21 and growers were allocated a 20% water quota (Cramer and Chisoro-Dube, 2021).

Because of the reduced water supply, farms have had to prioritise watering the higher value product and/or irrigate only the young trees, or stopped irrigating altogether.<sup>21</sup> Furthermore, water constraints cause crop reduction and negatively affects the quality of the crop. Trees yield smaller fruit sizes which means lower prices in the market.<sup>22</sup>

#### 4.4 Packhouses

Packhouses are a critical link in the value chain – they process the fruit grown for export and local markets and can also be involved in marketing the product. The importance of the packhouse functions in the value chain is reflected in the packing and related activities accounting for a larger share of the value than the growing and picking (Table 1). Packhouses are characterized by economies of scale with bulk purchases in terms of procuring inputs such as fertilisers and chemicals, and packing cartons.

The packhouse sorts, grades and packs the fruit according to specific market or customer specifications. The fruit then enters the cold chain to be optimally managed through to its destination.<sup>23</sup>

Packhouses are owned by individual growers or private companies. The period after deregulation saw individual growers starting to own packhouses including large commercial farms (Mather and Greenberg, 2003).<sup>24</sup> The citrus industry had around 400 packhouses in 2019. The industry has evolved with each farmer wanting to own a packhouse and this has become the trend from around 2010.<sup>25</sup> Over the past 5–10 years, there has been investments in new and upgraded packhouse facilities as a result of good returns and capital being re-invested by growers.<sup>26</sup> Growers without packhouses pack with privately-owned packhouses and pay packing fees. Transport costs of sending fruit to other packhouses are also material.<sup>27</sup>

The advantages of owning a packhouse are that a grower has control over their own fruit, it is packed correctly, and it is packed on time; and transport costs are saved to send fruit to

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<sup>21</sup> Interviews with large exporting farm, 23 March 2020; black citrus farmers, 31 August 2020; 16 September 2020

<sup>22</sup> Interviews with black citrus farmers, 16 September 2020 and 31 August 2020; large exporting farm, 23 March 2020; 29 June 2020

<sup>23</sup> Interviews with large exporting farm, 20 July 2020; traceability expert, 10 February 2020

<sup>24</sup> Interviews with large exporting farms and companies, 23 March 2020; 29 June 2020; 20 July 2020

<sup>24</sup> For example, Piet Citrus has three packhouses, two of which pack for export and together can handle 200 tonnes of fruit per day (interview 29 June 2020). Scale economies were noted by the Competition Tribunal in the Patensie decision [2002], meaning that there is local market power at this level. A counter example is provided by Entabeni in Gamtoos Valley, which has its own packhouse and is exporting, while working with Sundays River Citrus Company. Entabeni then switched to the Humansdorp Co-op as a strategic partner (Interview 31 August 2020).

<sup>25</sup> Interview with large producer-exporting company, 23 March 2020

<sup>26</sup> Interview with growers' industry association, 17 March 2021

<sup>27</sup> In *Patensie*, the Tribunal noted (para 83) that the Commission calculated that the additional transport costs involved in delivering fruit to the closest alternative, the Sundays River Valley packing facility, would increase the cost of packing by approximately 27%. The respondent, on the other hand, finds that additional transport costs would add 12.67% to the cost of packing. Some 70% of the citrus produced by the farmers in the Gamtoos River Valley was packed and marketed by Patensie meaning it was presumed dominant if this is decided to be the relevant geographic market (para 83).

another packhouse.<sup>28</sup> Producers that own packhouses can also implement or effect any changes immediately.

#### 4.5 Marketing and logistics for fresh citrus

The marketing and logistics arrangements depend on the specific value chain being supplied.

Export marketing companies play an important role in the value chain given the export-oriented nature of the industry.<sup>29</sup> Growers can export through packhouses, export agents or export marketing companies who market the fruit in terms of promotions and advertising.<sup>30</sup> These agents know the market, find clients in different markets, negotiate price, advise the grower on where to send how much of their fruit, and export the fruit on the grower's behalf.<sup>31</sup> The export agent also plans and manages the shipping and sale of the fruit including instructing the grower and packhouse on the specific market requirements.

Marketing companies export citrus to a number of countries in order to diversify their export markets and export all classes of fruit.<sup>32</sup> Marketing companies also aim to supply a full basket of different citrus varieties to meet customer requirements as well as supply markets for a longer period.<sup>33</sup> In these markets there are premium segments in the higher-end retailers, what are termed 'fixed' deals or programmes, as compared to selling into open markets.<sup>34</sup> For example, companies can supply directly into the major supermarket chains in the UK if they meet requirements for specified quantities and quality. Retaining and maintaining these arrangements with supermarkets is regarded as a lot safer than supplying to the open market.<sup>35</sup> Such companies also focus on premium varieties, particularly soft citrus.

While some marketing companies focus on international export markets, other marketing companies focus on the regional and continental markets including Zambia, Ghana, Angola, Algeria, Nigeria and Namibia.<sup>36</sup> However, the share in value of South Africa's citrus exports to these markets is minute (ranging between 0.1% to 0.2% of the total value of exports).

Fruit that does not get exported is sold through local supermarket chains, municipal and national fresh produce markets, wholesalers, fruit juicing companies, informal markets, and the government's feeding schemes in schools.<sup>37</sup> Local markets do not have as strict standards and requirements as demanded in export markets although the local supermarket chains

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<sup>28</sup> Interviews with black citrus farmers, 31 August 2020; large producer-exporting farms/companies, 23 March 2020; 20 July 2020; 29 June 2020; fruit marketing company, 04 September 2020

<sup>29</sup> Interviews with fruit marketing company, 04 September 2020

<sup>30</sup> Interviews with large producer-exporting farms/companies, 23 March 2020, 18 September 2020; black citrus farmers, 31 August 2020, 09 September 2020

<sup>31</sup> Interviews with large producer-exporting farms/companies, 23 March 2020, 18 September 2020; black citrus farmers, 31 August 2020, 09 September 2020

<sup>32</sup> Interviews with fruit marketing company, 14 October 2020

<sup>33</sup> Interviews with large producer-exporting farm/company, 23 March 2020; fruit marketing company, 14 October 2020

<sup>34</sup> Interviews with large producer-exporting farm/company, 23 March 2020; traceability expert, 10 February 2020

<sup>35</sup> Interviews with large producer-exporting farms/companies, 23 March 2020, 29 June 2020; fruit marketing company, 14 October 2020

<sup>36</sup> Interview with fruit marketing company, 14 October 2020

<sup>37</sup> Interview with black citrus grower, 23 March 2020

including the Pick 'n Pay, Woolworths and Checkers require Global GAP certification and accreditations.<sup>38</sup> Local supermarkets are also competing for good quality fruit, increasing local prices in this segment.<sup>39</sup>

In export markets, competition is international with other citrus exporting countries, and it is around price, quality and size.<sup>40</sup> Timely delivery is also very important.<sup>41</sup>

The export business involves very close coordination through network of service providers. This includes logistics ensuring the cold chain is maintained through the port and sea freight. Whilst the operational process of physical product handling takes place, there is a simultaneous stream of documentation flow to ensure product legality and 100% traceability. Tracking technology is evolving rapidly to allow temperature monitoring along the journey through cell phone connections.<sup>42</sup>

#### **4.6 Processed citrus products**

The downstream processing of citrus largely consists of two main activities: the manufacture of concentrate; and juice-mixing which dilutes the concentrate into ready-to-drink juices, bottles and packages the final product.<sup>43</sup> Manufacture of concentrate is carried out by a few large-scale primary processors, while the bottling and packing is characterized by both large and SME companies. There are also medium-sized niche producers in higher quality products such as freshly squeezed juices and prepared fruit products.

Fruit processing companies play an important function in the citrus value chain – they provide an outlet for downgraded fruit that would otherwise be put to waste. Of the total volume of fruit produced, 25–30% comprises of 'fallout fruit', which cannot be sold in fresh fruit markets and goes to fruit juicing. As such, processing plants are born from the need to cost-effectively process excess fresh fruit that cannot be sold on the fresh (local and export) markets.<sup>44</sup>

The manufacture of concentrate is comprised of large companies because of the capital investments required and the need to have a secure farm source of the raw material, i.e. fresh fruit.<sup>45</sup> To ensure the reliable supply of fruit, concentrate manufacturers have farmer shareholders with whom they have supply agreements.<sup>46</sup> Their processing facilities are ideally situated close to production farms to cut down on transport costs and ensure access to fresh fruit.<sup>47</sup> However, the availability of fresh fruit for processing depends on the quality of the farming season, including weather conditions. For example, if the fruit on the trees is

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<sup>38</sup> Interview with fruit marketing company, 14 October 2020

<sup>39</sup> Interview with fruit marketing company, 14 October 2020

<sup>40</sup> Interviews with large producer-exporting farms/companies, 23 March 2020; 23 March 2020

<sup>41</sup> Interviews with black citrus farmers, 09 September 2020; large producer-exporting farms/companies, 29 June 2020; 23 March 2020

<sup>42</sup> Interviews with fruit marketing company, 04 September 2020; large producer-exporting farm/company, 20 July 2020

<sup>43</sup> Interviews with fruit juice industry association, 14 October 2020

<sup>44</sup> Interviews with concentrate manufacturers, 30 May 2020; fruit juice industry association, 14 October 2020

<sup>45</sup> Interviews with concentrate manufacturers, 27 and 30 May 2020; fruit juice industry association, 14 October 2020

<sup>46</sup> Interviews with concentrate manufacturers, 27 and 30 May 2020

<sup>47</sup> Interviews with concentrate manufacturers, 27 and 30 May 2020

damaged – has more black spots, blemishes, sunburns, or there is hail and high winds which causes fruit to fall off the trees – then processing plants get higher volumes of fruit to process.<sup>48</sup>

Concentrate manufacturers sell fruit juice concentrate to local and export markets. A larger proportion of the concentrate is destined for export markets in Europe, UK, the Far East, China and Italy. Some exports are directed to the Southern African region, to countries such as Namibia and Botswana. Locally, concentrate is sold in bulk to large downstream juice-mixing businesses such as Clover, Ceres, Parmalat, Ceres, Danone, Clover, Tiger Brands, Coca Cola, Sir Juice and Take 5.<sup>49</sup>

The downstream juice-mixing businesses dilute/mix the concentrate into ready to drink juices and bottle the final product under their own brands for sale through various channels. While the bottling level of the value chain is dominated by large companies, it also has a few small and medium-sized family-owned companies participating at this level because of the relatively low barriers to entry.<sup>50</sup> These include some fresh fruit juice companies, not from concentrate. However, some smaller players went bankrupt due to Covid-19 because they focused on the tourism industry.<sup>51</sup>

The small juice companies mainly sell to independent retailers in local townships, while the large and medium-sized companies primarily sell to mainstream supermarkets including wholesalers, independent retailers, general traders and distributors. These large and medium-sized companies also export to other African countries via supermarket chains.<sup>52</sup>

#### **4.7 Role of industry associations**

A central aspect of the citrus industry is the role of industry associations in coordinating different players across the value chains and collective action with government to ensure industry support. The Citrus Growers Association (CGA) is the coordinating institution for fresh citrus exports while the South African Fruit Juice Association (SAFJA) focuses on the processing and bottling level of the value chain.

##### **4.7.1 The Citrus Growers Association**

Citrus has always been substantially oriented to export markets and, with deregulation in 1997, anyone could apply to register as an export agent. However, the growers recognised that collective organisation was essential for market access and an alternative to Outspan needed to be created. The South African Citrus Growers Association (CGA) was created for this specific purpose. It has since extended its activities into research and technical support, transformation, skills development, logistics, communication and administration services for the benefit of citrus growers in Southern Africa.

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<sup>48</sup> Interviews with concentrate manufacturers, 27 and 30 May 2020

<sup>49</sup> Interviews with concentrate manufacturers, 27 and 30 May 2020, fruit juice industry association, 14 October 2020

<sup>50</sup> Interview with fruit juice industry association, 14 October 2020, with concentrate manufacturer, 17 February 2020

<sup>51</sup> Interview with small juice-mixing company, 17 February 2020; medium-sized juice-mixing company, 10 March 2020; fruit juice industry association, 14 October 2020

<sup>52</sup> Interview with small juice-mixing company, 17 February 2020; medium-sized juice-mixing company, 10 March 2020; fruit juice industry association, 14 October 2020



The CGA has around 1,400 commercial grower members, who grow primarily for the fresh export market.<sup>53</sup> The CGA is wholly grower-owned and controlled. In addition, the Citrus Growers Development Company (CGDC), which was established by the CGA, has 145 members which are black farmers. Around half of the black citrus growers export and, by virtue of exporting, are members of both the CGA and the CGDC.

### ***Key activities of the CGA***

CGA's industry activities are executed through separate companies with their own boards and management.<sup>54</sup> These include companies providing services on a non-commercial basis such as the Citrus Academy to provide skills development and capacity building, and the Citrus Growers Development Company established in 2016 to support black growers. Citrus Research International established in 2001 provides research and technical support for growers to meet export requirements and enhance access to world markets. The CGA also established companies providing services on a commercial basis. These include River BioScience which manufactures and commercialises crop protection products and services for the local industry and international citrus and other agricultural markets from CRI. Similarly, the CGA established the CGA Cultivar Company to provide growers with access to citrus cultivars.

As part of its key activities, the CGA plays a central role in engaging the government to enable various statutory and non-statutory functions to be fulfilled on its behalf. The CGA works closely with the government on issues of market access, logistics, tariffs and trade barriers which are crucial for exporting. Market access involves government-to-government negotiations, with CGA representing local players and providing technical support.

Closely related is the CGA's work with the Department of Agriculture, Land Reform and Rural Development (DALRRD) to develop an electronic data-sharing platform called Phytclean for issuing export phytosanitary certification.<sup>55</sup> Growers, packhouses, exporters and supply chain service providers use the digital platform technology to capture, store, and report data for export phytosanitary certification.<sup>56</sup> The export business also involves very close coordination with the government in terms of logistics. The CGA engages with the Department of Public Enterprises, which houses Transnet to ensure an efficient logistics chain large enough in terms of trucks and cold storage to handle exports.<sup>57</sup>

### ***Funding of CGA's activities***

The CGA's activities are funded through statutory export levies charged on every carton exported.<sup>58</sup> The industry levy is approved by the Minister of Agriculture, Land Reform and Rural Development.

The budget for the CGA has increased substantially in line with the increases in levies and the fact that these levies have been applied to substantially higher levels of exports as shown in

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<sup>53</sup> See [www.cga.co.za](http://www.cga.co.za)

<sup>54</sup> Interview with growers' industry association, 17 March 2021

<sup>55</sup> <http://citrusresourcewarehouse.org.za/>

<sup>56</sup> <http://citrusresourcewarehouse.org.za/>

<sup>57</sup> Interview with growers' industry association, 17 March 2021

<sup>58</sup> [www.cga.co.za](http://www.cga.co.za)



Figure 1. The levy was recently increased by more than 100%, from 74 cents per every 15kg carton exported in 2020 to R1.64 for 2021 (see Table 1).

**Table 1: CGA export levies per 15kg export carton & annual levy incomes**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Levy	39c	40c	41c	47c	50c	53c	56c	68c	70c	72c	74c	R1.64
Income (RmIn)	32.5	36.98	36.8	39.9	50.3	55.1	59.7	59.2	80.1	91.6	90.9	

*Source: CGA Annual Reports (2010–2020)*

#### 4.7.2 South African Fruit Juice Association

##### **Key activities of SAFJA**

SAFJA's membership comprises of about twenty to twenty-five processing and packaging companies.<sup>59</sup> With the juice industry a heavily regulated industry, SAFJA ensures that there are regulations in place that are compatible with international standards. SAFJA provides a self-regulatory programme to the industry where it tests products' composition and authenticity, inspects labels of products, and conducts sufficiency testing. SAFJA also assists companies with how to conduct tests and interpret results. The industry body carries out practical tests with companies and they teach and guide processors on how to perform certain tests including how to use laboratory equipment and interpret the results. SAFJA also has a technical committee which assists companies to understand and interpret the industry regulations for different juice products.

The organisation also works closely with National Treasury, Department of Trade, Industry and Competition (*dtic*), Department of Health and Department of Agriculture, Land Reform and Rural Development. For example, SAFJA has engaged with National Treasury on the sugar tax on behalf of members.

#### **5. Opportunities for inclusion of SMEs: institutions, structures and value chain dynamics**

The issue of inclusion in citrus production is largely about black South African farmers who were systematically excluded from commercial agriculture under apartheid. This issue is inextricably linked to the land reform process to transfer land back to the communities from whom it had been taken under colonial rule and then apartheid. Inclusion of smaller growers is also related to being able to compete in the higher value export markets, which is impacted by how other levels of the value chain work, inclusion of participants at these levels, and

<sup>59</sup> Interview with small juice-mixing company, 17 February 2020; medium-sized juice-mixing company, 10 March 2020; fruit juice industry association, 14 October 2020

various initiatives to support black farmers. There has been much criticism of the pace of change in terms of land reform and the effectiveness of support to black farmers, which we assess below. Issues of inclusion in the processing activities, in terms of small and medium enterprises in juices and other processed citrus products, are also considered.

### **5.1 Land reform and inclusion in citrus farming**

There are three pillars of the land reform programme, and these are restitution, redistribution and tenure reform as mechanisms of land acquisition and allocation (Department of Land Affairs, 1997; Presidential Advisory Panel on Land Reform and Agriculture, 2019).

Land restitution involves returning land to the communities which were dispossessed after 19 June 1913 as a result of racially discriminatory laws or practices, or compensating victims for land rights lost after 19 June 1913 (Department of Land Affairs, 1997). Groups of beneficiaries lodge claims based on historic evidence of land on which their families had been settled before being dispossessed and this is then purchased by the government at market related prices.<sup>60</sup>

To enable communal ownership of land, the Communal Property Associations Act (No. 28 of 1996) was enacted to allow for the establishment of a Community Property Association (CPA), as the custodian of the land holding.<sup>61</sup> In this model, the community receiving land under restitution generally leases the land to private commercial farming companies. The commercial farming company signs a lease with the CPA<sup>62</sup> and the farm is operated as a strategic partnership between the community and the commercial farming company.<sup>63</sup>

Redistributive land reform is largely based on willing-buyer/willing-seller arrangements. Beneficiaries are able to purchase land directly from willing sellers, including the state. The government will assist in the purchase of land through a grant, but will in general not become directly involved in the land purchase as the buyer or owner. In many cases, communities are expected to pool their resources to negotiate, buy and jointly hold land under a formal title deed. Individuals can also access the grant for land acquisition (Department of Land Affairs 1997).

Land tenure reform involves a move towards rights and away from permits. It aims to bring all people occupying land under a unitary, legally validated system of landholding (Department of Land Affairs, 1997).

The state has focused most resources on restitution with Limpopo having the highest number of restituted farms in the country compared to any other province.

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<sup>60</sup> Interview with provincial department of agriculture and rural development, 18 February 2020

<sup>61</sup> Interview with the national development finance institution, 20 November 2019

<sup>62</sup> Interview with large producer-exporting company, 23 March 2020

<sup>63</sup> Interview with large producer-exporting farms/companies, 23 March 2020

In 2010, the government put a moratorium on the sale of farms and transfer of title deeds. Instead, the government has been agreeing to nine-year leases.<sup>64</sup> The government buys properties and leases these properties to black farmers. In some cases, beneficiaries organise themselves into a group, form a trust and make an application to the government for land.<sup>65</sup> In other cases, they have been individuals.<sup>66</sup> The government then enters into a contract with the beneficiaries over a stipulated period of time, also called the leasing track (of five years), under the conditions of the State Land Lease and Disposal Policy. During the initial period, the beneficiaries need to prove to the government that they can farm the land on their own, after which the government will transfer the title.<sup>67</sup> However, the government has been very slow in transferring title deeds.<sup>68</sup>

The government changed land tenure to a lease basis in efforts to solve issues regarding black farmers that would get the title deed and use it to get loans that they could not repay, then they would sell the land to the highest bidder which would usually be a white owner/farmer.<sup>69</sup>

The slow pace of land reform led to a Proactive Land Acquisition Strategy (PLAS), which was adopted in 2006 to speed up acquisitions and became the sole model from 2010 (Department of Land Affairs, 2006). Notwithstanding this strategy, two farmers interviewed only obtained their farms in 2012 and 2015 under PLAS. Three others, Zebediela, Mbuyiselo Workers Trust, and Sundays River Farming Trust received land in 2003 and 2007. However, the title deeds sit with the government.<sup>70</sup> The process of acquiring title deeds from the government has therefore been extremely prolonged.<sup>71</sup>

Some black farmers obtained land in the form of farms previously owned and run by the local administrations of the former 'homelands' or Bantustans. The farms were sold to private owners shortly before 1994, although title deeds were often not obtained until many years later. These include the cases of Ripplemead and White Citrus farms, being formerly owned by the Ciskei 'homeland' authority. Titles of Ripplemead and White Citrus were only obtained in 2012 and 2008 respectively. Other farms in former homeland areas have still not acquired title deeds and are farming under long-term leases (such as Mariveni Lizilor in Limpopo province). In addition, there have been some cases of worker empowerment programmes where existing white farm-owners working with the government, sell (a portion of) their farms to permanent workers on the farm.<sup>72</sup> In this model, the group of workers apply for a

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<sup>64</sup> Interview with the national development finance institution, 20 November 2019; Interview with large producer-exporting company, 18 September 2020

<sup>65</sup> Interview with black citrus farm, 31 August 2020; Interview with large producer-exporting company, 18 September 2020

<sup>66</sup> For example, in the Ciskei, see interview with citrus grower, Walter Mathidi 23 March 2020; White Citrus Farm, 04 September 2020; Ripplemead Farm, 16 September 2020

<sup>67</sup> Interview with large producer-exporting company, 18 September 2020

<sup>68</sup> Interview with large producer-exporting company, 18 September 2020

<sup>69</sup> Interview with a co-operative, 07 August 2020

<sup>70</sup> Interviews with large producer-exporting farms/companies, 23 March 2020

<sup>71</sup> Interview with large producer-exporting company, 23 March 2020

<sup>72</sup> Interviews with large producer-exporting company, 18 September 2020; black citrus farmers, 09 September 2020

bank loan to purchase the land, taking ownership of the farm once the loan has been paid off.<sup>73</sup>

In some cases, those taking over the farms had been working on them, or in other farms in the area. In other cases, the community beneficiaries had no background in citrus farming. In almost all cases, those taking over the farms were faced with outdated infrastructure and farms which required substantial investment to meet standards required for export. The farmers often do not have cash-flow or working capital to run the farm.<sup>74</sup> The new farmers therefore faced major challenges in making the investments required, accessing the know-how and inputs, and in being able to market their produce. Limited and/or lack of access to funding by land reform beneficiaries is exacerbated by not holding the land title deeds which means they do not have collateral to secure loans from the banks.<sup>75</sup> Sometimes, land reform beneficiaries can only access limited funds from banks and institutions such as the Landbank.<sup>76</sup> Land reform has changed as the government no longer gives out title deeds to land but leases it out. Although black farmers may have land and water, they lack collateral to access loans.

There are black-owned farms that are already operational when taken-over and those that are greenfield projects. Greenfield projects mean that the farmer has to apply for water and electricity and an Environmental Impact Assessment (EIA) from the government. The government provides grants to cover fixed costs such as the putting up of a shed and paying for the EIA, but the resources are limited and spread across multiple black farmer projects.<sup>77</sup>

The farm sizes of black farmers are not substantially smaller than for established white farmers, reflecting the fact that the land reform process has led to the transfer of some quite large farms (including to trusts, communities and individual farmers). However, it is important to note that farm area does not necessarily reflect production capacity given the importance of investing in high yield cultivars and intensive farming methods such as irrigation systems.

### ***Strategic partnerships and joint ventures***

The investment and capabilities challenges facing land reform beneficiaries have led the government to require strategic partnerships to ensure continued production on the farms.<sup>78</sup> Land reform projects in citrus have therefore been anchored around various types of partnerships between beneficiaries and private companies. Farms have been run by, or with, partners who are generally established white commercial farmers, under different models.<sup>79</sup> The models can be distinguished as: a) strategic partnerships where the farm management is

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<sup>73</sup> Interviews with black citrus farmers, 09 September 2020

<sup>74</sup> Interviews with black citrus farmers, 15 September 2020

<sup>75</sup> Interviews with large producer-exporting companies, 23 March 2020; 18 September 2020

<sup>76</sup> Interview with black citrus farmers, 15 September 2020, co-operative, 07 August 2020

<sup>77</sup> Interview with a co-operative, 07 August 2020

<sup>78</sup> Interview with black citrus farmers, 31 August 2020; large producer-exporting company, 18 September 2020

<sup>79</sup> Interview with large producer-exporting farms/companies, 18 September 2020; 23 March 2020; 29 June 2020; black citrus farmers, 23 March 2020; 31 August 2020; 15 September 2020; 09 September 2020; 16 September 2020; 04 September 2020

contracted out completely; or b) strategic partnerships where beneficiaries and the private company jointly run the farm. There can be combinations of these partnerships, which have also evolved over time.<sup>80</sup> The relationships are complex given the different incentives and the lack of clarity about the pricing and returns being earned by different parties depending on how the arrangements are structured and the changes in performance and pricing.

The large established commercial partners include groups such as Lona Group, Sundays River Citrus Company and Du Roi, as well as the Humansdorp Co-operative. For example, Sundays River Citrus Company services 106 growers in the Eastern Cape of which many are land reform beneficiaries.<sup>81</sup> This highlights that many smaller growers including well-established growers, and not only land reform beneficiaries, work with partners to supply inputs, advisory services and for marketing. Beneficiaries may have more extensive relationships, such as strategic partnerships with companies that previously acted as their exporting or marketing agents.<sup>82</sup>

Beneficiary farms sign management contracts or agreements with strategic partners for a specified period of time with room for renewal. Beneficiaries can change partners should the partnership fail to work or if they feel they can now farm on their own without the partner's assistance.<sup>83</sup>

In community land restitution programmes, the beneficiaries generally lease their communal land to strategic partners, who then take over the entire farming and production functions of the farm and are responsible for the finances.<sup>84</sup> The strategic partner manages the farm on behalf of the beneficiaries and provides financial statements to the beneficiaries.<sup>85</sup> They provide the farm with funding for production inputs, working capital, and they upgrade the farm.<sup>86</sup> In this model, community members or cooperative members are not involved in actual farming but they can choose to supply labour as farm workers in different positions.<sup>87</sup> In return, the strategic partner pays dividends to the community or individually to cooperative members at the end of the year based on agreed profit-sharing ratios/shareholdings or ownership in production, which vary depending on the agreement.<sup>88</sup>

A different model to the above is whereby beneficiaries are directly involved in farming and managing the farm with assistance and mentorship from the commercial partner.<sup>89</sup> Beneficiaries pay the strategic partner a management fee for its services.<sup>90</sup> Beneficiaries, on the other hand, receive pay-outs which may depend on the stake in the farm, depending on

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<sup>80</sup> Interview with large producer-exporting company, 23 March 2020

<sup>81</sup> Interview with large producer-exporting company, 18 September 2020

<sup>82</sup> Interview with large producer-exporting company, 23 March 2020; black citrus farmer, 15 September 2020

<sup>83</sup> Interview with black citrus farmer, 31 August 2020; large producer-exporting company, 18 September 2020

<sup>84</sup> Interview with large producer-exporting farms/companies, 23 March 2020; black citrus farmers, 15 September 2020

<sup>85</sup> Interview with black citrus farmers, 15 September 2020

<sup>86</sup> Interview with black citrus farmers, 15 September 2020

<sup>87</sup> Interview with large producer-exporting farms/companies, 23 March 2020; black citrus farmers, 15 September 2020

<sup>88</sup> Interview with black citrus farmers, 15 September 2020; large producer-exporting farms/companies, 23 March 2020; 18 September 2020

<sup>89</sup> Interview with black citrus farmers, 09 September 2020; 31 August 2020; large producer-exporting farms/companies, 18 September 2020

<sup>90</sup> Interview with black citrus farmers, 31 August 2020; large producer-exporting farms/companies, 18 September 2020

the beneficiary's position, and the amount of work each one puts into the farm.<sup>91</sup> In this model, the beneficiaries are part of the management team as farm managers and supervisors, as well as general workers of the farm.<sup>92</sup> Such models structure the company in such a way that the beneficiaries are part of the board of directors and are involved in decision making for the farm operations together with the strategic partner. This arrangement ensures that beneficiaries share control of the business with the strategic partner.<sup>93</sup>

The strategic partner provides the beneficiaries with a production manager to assist the beneficiary farm managers.<sup>94</sup> The farm or general manager is responsible for overseeing all farm day-to-day operations. The farm manager reports to the board of directors quarterly regarding the progress of the farm. High level decisions from the board of directors are filtered through to the general manager.<sup>95</sup> The partner is fully involved with supporting the black management with regard to human resources, technical assistance in production, financial management and budgets, asset maintenance and the transfer of farming and business skills to the beneficiaries.<sup>96</sup> They assist with expansion of the farm and give advice in terms of market information on which varieties to plant for the market. The strategic partner also assists with the packing and marketing of the beneficiary's fruit.<sup>97</sup> Strategic partners can also be responsible for the identification, mentorship and training of black farm managers.<sup>98</sup>

Strategic partners provide packhouse operations, marketing and inputs. The links can also be more at arms-length to do with sourcing inputs, marketing produce or supplying citrus varieties. This is the case with Entabeni which has an agreement with Stargrow for certain varieties of soft citrus.<sup>99</sup>

While land reform beneficiaries, particularly those that are directly involved in operations of the farm, generally report successful experiences of strategic partnerships that have led to profitable operations and growth of their farms,<sup>100</sup> beneficiaries that are not directly involved in farming often claim the opposite. They cite various challenges that lead to the failure and termination of strategic partnerships and signing on of new partners.<sup>101</sup> These relate to poor financial performance, such as not being paid dividends for periods of up to three years while

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<sup>91</sup> Interview with the national development finance institution, 20 November 2019; large producer-exporting farms/companies, 18 September 2020

<sup>92</sup> Interview with black citrus farmers, 31 August 2020; 09 September 2020; 15 September 2020; large producer-exporting farms/companies, 18 September 2020

<sup>93</sup> Interview with black citrus farmers, 31 August 2020

<sup>94</sup> Interview with large producer-exporting farms/companies, 18 September 2020

<sup>95</sup> Interview with large producer-exporting farms/companies, 23 March 2020; black citrus farmer, 31 August 2020

<sup>96</sup> Interview with black citrus farmers, 31 August 2020; 09 September 2020

<sup>97</sup> Interview with black citrus farmers, 31 August 2020; 09 September 2020; 15 September 2020; large producer-exporting farms/companies, 18 September 2020

<sup>98</sup> Interview with black citrus farmers, 09 September 2020

<sup>99</sup> Interview with a co-operative, 07 August 2020

<sup>100</sup> Interview with black citrus farmers, 31 August 2020; 09 September 2020; large producer-exporting farms/companies, 18 September 2020

<sup>101</sup> Interview with large producer-exporting farms/companies, 23 March 2020; black citrus farmers, 15 September 2020



not being provided with financial statements by the partner.<sup>102</sup> Such disputes often end up in court.<sup>103</sup>

## 5.2 Value chain governance and inclusion in fresh fruit production and exports

Lead firms play important individual roles in governing particular value chain levels and functions, and are important for the performance of smaller participants, including as strategic partners. As explained in section 4, access to varieties, and the role of packhouses and marketing companies are all essential for export success. The holders of the variety rights for protected varieties, more common in soft citrus, have the ability to control the plantings around the world and set various conditions. This can be to ensure that the variety is in the ideal growing environment, as well as to protect prices in export markets. These constraints work through local nurseries (some of which are owned by cultivar companies).

The power of packhouses to act as gatekeepers is also evident where farmers are too small to build their own packhouses. The potential to undermine growers was illustrated by the very first cases where the Competition Tribunal found there had been an abuse of a dominant position (see Roberts, 2004; 2012). In the case of Patensie Citrus operating in the Gamtoos Valley, the tribunal found that the exclusive supply arrangement between farmers and the former co-operative, Patensie, constituted an exclusionary abuse under section 8(d)(i) of the Competition Act and a vertical restrictive practice under section 5(1). The articles of association required customers (former co-operative members) not to deal with competitors.<sup>104</sup> The ruling enabled farmers to establish their own packhouses, including with other combinations of partners than previously. Funding has also been provided to groups of farmers for packhouse construction, including for groups of black farmers.

Compliance requirements and costs can be disproportionately large for smaller farmers due to the fixed cost effects.<sup>105</sup> With a consumer-driven market, farmers need to comply with a range of standards and pay for the different certifications.<sup>106</sup> Meeting the requirements requires systems and administration, although these will be reduced through strategic partnerships with packhouses.<sup>107</sup> It also means that the role of the CGA and the government in supporting compliance across the industry is especially important to reduce the disadvantage faced by small farmers.

Some land reform beneficiaries struggle to enter into export markets because they acquired farms which were not in a good state in terms of meeting export criteria.<sup>108</sup> The investments

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<sup>102</sup> Interview with large producer-exporting farms/companies, 23 March 2020

<sup>103</sup> Interview with large producer-exporting farms/companies, 23 March 2020

<sup>104</sup> Case 37/CR/Jun01 *Competition Commission v. Patensie Citrus Beherend Beperk*, decision on 4 August 2002. Upheld on appeal by the Competition Appeal Court. No penalty was imposed. The complaint was lodged with the Competition Commission by a farmer, JJP Bezuidenhout. The Patensie Citrus Co-operative became a limited liability company on 3 July 1998 and a holding company was subsequently established in 1999.

<sup>105</sup> Interview with traceability expert, 10 February 2020; black citrus farmers, 16 September 2020; district municipality, 23 March 2020

<sup>106</sup> Interview with a co-operative, 7 August 2020

<sup>107</sup> Interview with large producer-exporting farms/companies, 20 July 2020; 23 March 2020

<sup>108</sup> Interview with black citrus farmers, 31 August 2020

needed and compliance costs require a reasonable scale of production.<sup>109</sup> However, some of the farms easily entered export markets because they acquired farms that were already in operation and producing citrus for export before the beneficiaries acquired the farms. Such farms were exporting and had their own packhouses. As a result, such beneficiaries inherited the Global GAP certification which was already in place from the previous farm and simply need to maintain the farm.<sup>110</sup> Black farmers that are unable to meet export quality standards sell into the domestic market including to processing companies and into the informal market.

The CGA established the Citrus Growers' Development Company (CGDC) in 2016 to support broad-based participation of black farmers.<sup>111</sup> The CGDC provides both financial and on-farm support to land reform beneficiaries and black farmers, with funding from the government and from the industry's export levies.<sup>112</sup> 20% of the CGA's export levies are allocated to the CGDC and, with the increase in the levy, this implies a doubling of the support for black farmers in 2021.

The CGDC assists growers with training, business plans and share research on industry and market trends through workshops and meetings. Growers receive training on how to identify different pests, chemicals and spray programmes, and export requirements.

### 5.3 Inclusion in fruit processing

In processing, the substantial scale economies at some levels, especially concentrates, raises barriers to the entry and growth for smaller producers (see also Vilakazi et al. 2020). Juice-mixing and fresh juices have lower barriers to entry, although in juices mixed from concentrate there are large companies with strong brands and supermarket positioning such as Clover, Ceres, and Fruitree (Pioneer).<sup>113</sup> There are some small and medium-sized companies which are regional and hence save on the costs of a national distribution system.<sup>114</sup> The small and medium-sized companies are also innovative in marketing their products, making use of social media platforms such as Facebook and Instagram. However, while there is a lot of small juice manufacturers entering the space and selling at low prices, they also quickly exit the industry given the intensity of price competition.<sup>115</sup>

While the main activities in the value chain are production of concentrated fruit juices and juice-mixing, there are also small and medium-sized companies that are involved in high quality freshly squeezed fruit juices and fruit preparations (fruit cake fillings, toppings and

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<sup>109</sup> Interview with fruit marketing company, 14 October 2020; black citrus grower, 23 March 2020

<sup>110</sup> Interview with black citrus farmers, 31 August 2020

<sup>111</sup> Citrus Growers Development Company Annual Presentation, 2020; Interviews with growers' industry association and industry body supporting black growers, 2020

<sup>112</sup> Interview with black citrus farmers, 31 August 2020

<sup>113</sup> Interviews with small juice-mixing company, 17 February 2020; medium-sized juice-mixing company, 10 March 2020; fruit juice industry association, 14 October 2020

<sup>114</sup> Interview with medium-sized juice-mixing company, 10 March 2020

<sup>115</sup> Interview with small juice-mixing company, 17 February 2020; medium-sized juice-mixing company, 10 March 2020; freshly squeezed juice company, 30 May 2020; fruit juice industry association, 14 October 2020



decorations; fruit drinks and milkshakes; jams). This segment of the industry is growing with customers following healthier lifestyles and shifting towards fresh organic products.<sup>116</sup>

Companies involved in high quality fruit preparations and freshly squeezed fruit juices/cold pressed juices use fresh fruit as a key input. There are therefore opportunities for smaller firms to succeed in these high-quality niches where raw materials are sourced from producers own, or associated, farms.<sup>117</sup> However, access to a secure source of fresh fruit is a challenge because of seasonality, competition for raw materials between fresh markets and processing markets and the impacts of droughts which limit fruit supply and affect pricing.<sup>118</sup>

## **6. Innovation and upgrading of capabilities in the citrus value chain**

Underpinning the whole performance of the South African citrus value chain is the success in ongoing upgrading of capabilities to meet the demands of export markets. This has involved major innovations and medium-term investments. The goal to produce high-quality fruit, a highly perishable product, for export markets has driven key technological changes – from inputs through growing to packing, certification and marketing. The ‘industrialization of freshness’ hinges on fruit producers’ ability to improve the quality of fruit and product shelf life through research and technology development (Cramer and Chisoro-Dube, 2021).

We analyse what the key innovations and upgrading initiatives have been and how they have been supported along the citrus value chain. There are two key areas of change: first, the development of cultivars and the supply of citrus trees to growers through nurseries; and second, the application of technologies and digitalisation of production, packing and certification necessary to realise export market opportunities. In particular, the patterns of internationalisation and the role of lead firms and institutions are emphasised. In section 7 we analyse the key actors and their roles in more detail.

### **6.1 Innovation and upgrading in fresh fruit**

The main driver of innovation has been the preferences, competition, requirements and standards in the main export markets. Compliance with export standards and requirements creates value for the fruit in being able to supply relatively high-income markets.

#### ***Cultivars***

South Africa has developed its own local cultivars. These are mainly from identifying natural mutations, whereby farmers notice differences in a tree or branch that is producing a different fruit compared to the others.<sup>119</sup> Cultivar companies further develop such cultivars from a potential new cultivar to a commercial cultivar through conducting extensive testing

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<sup>116</sup> Interview with fruit preparations, 03 March 2020; freshly squeezed juice company, 30 May 2020

<sup>117</sup> Interview with fruit preparations, 03 March 2020; freshly squeezed juice company, 30 May 2020

<sup>118</sup> Interview with fruit preparations, 03 March 2020; freshly squeezed juice company, 30 May 2020

<sup>119</sup> Interviews with fruit marketing company, 14 October 2020; nursery, 19 August 2020; cultivar development and management company, 14 October 2020

and evaluation, and research and development activities. This process takes about ten to fifteen years from spotting the mutation to introducing a new cultivar into the industry.<sup>120</sup>

Although South Africa has developed its own local cultivars, most developments in terms of cultivars in the South African citrus industry are from imported varieties. South African cultivar companies have built strong international networks through establishing offices in different countries and/or plugging into international companies that have their own breeding programmes worldwide. They do this for two main purposes – to bring in new, innovative cultivars from other citrus producing countries to South Africa and to take new innovations from South Africa to other citrus producing countries. There have been many more international cultivars coming into South Africa, although South Africa has local cultivars that are competing with the international cultivars in some segments.

The market trend has been to move away from oranges towards soft citrus for which global demand is growing, meaning cultivars for these are very important for export success. A large portion of soft citrus is in protected varieties (subject to intellectual property rights), while oranges, and lemons and limes are largely freehold and can be planted by any grower. Access to protected varieties comes with certain restrictions including with regard to marketing and implementation of limited plantings to restrict supply relative to demand and maintain a premium market positioning.<sup>121</sup>

New and improved cultivars matter for export markets, with cultivars being developed to meet changing international preferences. The changing tastes have increased the importance of new cultivars, especially in soft citrus, which are associated with substantially higher prices on exports to the largest market for South African fruit, in Europe. Market tastes also diverge across countries. While European consumers prefer the smaller and more acidic fruit, including soft citrus varieties, Chinese and East Asian markets prefer larger and sweeter fruit similar to consumers in South Africa.

New varieties also serve to lengthen the grower's picking season and extend the window of supply to export markets. To lengthen the picking season, growers search for varieties that can fill gaps between harvesting periods of existing farm varieties or they search for varieties that are earlier than the earliest variety of that fruit, or later than the rest of the varieties of that fruit.

The access to new cultivars depends on local capabilities in cultivar development and management, and the international linkages of these businesses to breeding programmes around the world, as most new citrus varieties in South Africa are from imported cultivars. A very few companies in South Africa have developed these capabilities.<sup>122</sup> These companies have built a network of international relationships enabling them to track the advances in cultivars around the world and source ones which are suitable for South African conditions. The nurseries then propagate the imported cultivars, and these cultivars are integrated into

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<sup>120</sup> Interviews with cultivar development and management companies, 14 October 2020; 02 December 2020

<sup>121</sup> Interview with large exporting farm, 29 June 2020

<sup>122</sup> These are Stargrow and Citrogold.

nurseries, as well as linked with growers to whom they provide advice.<sup>123</sup> Cultivar development and management companies therefore play a pivotal role, with a critical set of capabilities, between breeders and growers (see Box).

**Box. Citrogold SA and Biogold International (ANB Group) case study<sup>124</sup>**

Citrogold SA is a South African variety development and intellectual property management company established in 1999. In 2005, Citrogold realised that they needed to expand and Biogold International was established. Biogold International became the parent company and was established as the holding company of Citrogold in an example of outward internationalization by a South African business. Biogold International has offices in North and South America and Europe, and partnerships with institutions in Australia and China.

Citrogold mainly focuses on acquiring and managing intellectual property in South Africa and elsewhere in sub-Saharan Africa. Once Citrogold acquires and develops a variety, Biogold manages the rights outside of the country. Biogold, on the other hand, focuses on acquiring the rights to varieties from foreign countries and brings them into South Africa to be managed by Citrogold. Biogold International has access to new varieties from around the world, through its relationship with subsidiary companies and private and public breeding organisations. Through these networks, South African growers have access to new varieties from around the world and South African breeders also have a platform for the international commercialisation of their products.

For example, Citrogold acquired the rights to manage Nardocott (a soft citrus variety of mandarins) for South Africa, which was developed more than forty years ago at an experimental station in Morocco. A French company Nador Cott Protection (NCP) owns the Nadorcott citrus variety and has registered its plant breeders right in South Africa.

In South Africa, Citrogold has established relationships with various South African industry bodies and regulatory authorities (Department of Agriculture, PPECB), research organisations (ARC and CRI) including nurseries, growers, exporters and importers. Citrogold is linked to the Du Roi nursery and has a farming division. Through these relationships, Citrogold has established a platform for variety commercialisation in the fruit industry.

<sup>123</sup> Interviews with cultivar development and management companies, 14 October 2020; 02 December 2020; nursery, 19 August 2020

<sup>124</sup> Interviews with cultivar development and management companies, 02 December 2020; nursery, 19 August 2020

Alongside private commercial cultivar companies, the citrus industry through the CGA's Cultivar Company (CGACC) sources and develops cultivars for the industry more widely to provide competition to the large private cultivar companies which can charge high royalties to farmers. Of particular importance is the cultivar company's focus on sourcing and developing cultivars that are important for the industry but would not necessarily earn a private commercial cultivar company profit, for example, grapefruit. There is limited demand for grapefruit because of the possibility that it negatively interferes with administration of certain medication or drugs. As such, grapefruit has not performed well when compared to other citrus fruit. However, a new variety of grapefruit was recently developed which does not have these properties and the CGACC is bringing the grapefruit cultivar into South Africa. The new variety will benefit established grapefruit growers in the industry who will be able to replace their orchards with the new improved variety.<sup>125</sup>

The CGACC also sources cultivars and rootstocks to address certain diseases affecting the industry. In 2020 and 2021, the CGACC has been focusing on the citrus greening and Asian greening disease. Extensive research is being conducted in respect of the greening disease. Following research, certain rootstocks and cultivars have been identified that are potentially not as susceptible to Asian greening. The CGACC is in the process of bringing these cultivars into South Africa.<sup>126</sup>

Development of genetically improved varieties is also key to responding to climate change threats, while assisting in complying with phytosanitary standards. This has increased the importance of the development of cultivars in South Africa.

### ***On-farm production technologies***

At the farm level, climate is a key driver of precision agriculture and the associated investments in setting up weather station networks to assist in irrigation scheduling, water management and modelling disease outbreaks. These measures facilitate decision making at the farm level.<sup>127</sup> Citrus as an export industry is highly regulated in terms of quality management and as such it has become data driven. Agriculture in general has become a highly technological operation that uses technology to facilitate and improve decision making in order to remain competitive. As such, citrus farmers are typically at the forefront of engaging and implementing technology.<sup>128</sup>

Frequent drought conditions and increased prevalence of pests and diseases mean that farmers have to plant cultivars with improved resistance to pests and diseases and that require less water, alongside making investments in irrigation technologies and pest control methods, to maintain and improve production. This is critical for producing the right size and quality of fruit demanded in export markets (Cramer and Chisoro-Dube, 2021). International

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<sup>125</sup> Interview with growers' industry association, 17 March 2021

<sup>126</sup> Interview with growers' industry association, 17 March 2021

<sup>127</sup> Interview with crop protection compounds supplier, 20 August 2020

<sup>128</sup> Interview with crop protection compounds supplier, 20 August 2020

competition also means there is increased pressure on growers and exporters to produce and supply the right quality and volumes of fruit in order to retain and maintain their markets.

To save water, farmers are investing in netting, the use of low-flow micro and drip irrigation technologies, including efficient irrigation systems which are programmed and operated through mobile phones. Fertigation systems are also used to irrigate and fertilize crops at the same time. These technologies enable much greater *precision agriculture* methods to be adopted. There is better use of water and monitoring of the nutritional needs of a tree.<sup>129</sup> Due to investments in water saving technologies, the citrus industry has managed to achieve water efficiency gains over the years through using the same water resources for increased areas under citrus plantings.<sup>130</sup>

The increased prevalence of pests and diseases also mean that farmers are having to use more chemicals to produce quality crops to meet export requirements.<sup>131</sup> However, more stringent regulation of crop protection pesticides fuelled by growing concerns around food safety particularly chemical residues is promoting a shift towards environmentally friendly organic farming. This impacts on the industry's ability to manage outbreaks of pests and diseases effectively.

With most of the country's citrus fruit destined for continental Europe and the United Kingdom, the European Green Deal is calling for more organic ways of farming which entails cutting pesticides to 50% of present levels of usage.<sup>132</sup> This presents challenges for growers in terms of producing quality fruit that is disease-free with limited use of chemicals especially in the context of climate change.<sup>133</sup> In response, the CGA, through River Bioscience, manufactures and commercializes non-chemical solutions for the industry. A key example is Cryptogran, a biological agent for commercial pest control of false codling moth larvae on crops, developed by the CRI. River Bioscience competes with agrochemical companies with non-chemical types of solutions for growers.<sup>134</sup> As part of its efforts, River Bioscience invested in Xsit, a company based on the sterile insect technique program for false codling moth control. The Xsit programme used to just operate in the Western Cape, but it has now extended its coverage to operate in the Eastern Cape. Furthermore, the sterile insect technique program is also being applied across to grape orchards.<sup>135</sup> More than 18,000 hectares of citrus and grapes are under the sterile insect technique program for false codling moth control.<sup>136</sup>

### **Digitalisation**

Digital technologies are being applied throughout the value chain with major implications for upgrading, as well as for inclusion in citrus production and exports.

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<sup>129</sup> Interview with a co-operative, 7 August 2020

<sup>130</sup> Interview with growers' industry association, 17 March 2021

<sup>131</sup> Interview with black citrus farmers, 09 September 2020; large producer-exporting farm, 23 March 2020

<sup>132</sup> Interview with growers' industry association, 17 March 2021

<sup>133</sup> Interview with crop protection compounds supplier, 20 August 2020; growers' industry association, 17 March 2021

<sup>134</sup> Interview with growers' industry association, 17 March 2021

<sup>135</sup> Interview with growers' industry association, 17 March 2021

<sup>136</sup> <https://riverbioscience.co.za/about-us/>

At the packing level, there have been major changes in packhouse technologies with digitalisation being applied in the use of cameras and sensors. Digital technologies represent a step change in the quality and speed of fruit sorting and grading to meet growing consumer demands. Cameras are able to direct the packing lines regarding which carton the fruit should fall into based on the number of blemishes, certain colour specifications, sizing and internal specifications. This optical grading and sizing attains a level of consistency and speed that one cannot obtain at a human level.<sup>137</sup> The benefits of employing such technologies in packhouses is productivity, accuracy and consistency in the supply of high-quality, defect-free fruit to consumers. These technologies raise the proportion of higher valued fruit exported, which is central to firms' prospects for upgrading within fruit value chains (Cramer and Chisoro-Dube, 2021).

There are also economies of scale in packing, which have increased with automation of the sorting and grading processes.<sup>138</sup> Where a packhouse is able to pack different fruits then the assets can be utilized across seasons. However, investments in packhouses depend a lot on the size of the packhouse and the kind of equipment one wants to put in the packhouse such as cold storage facilities, de-greening facilities and logistical infrastructure.<sup>139</sup>

Packhouse equipment and technologies are mainly imported from either New Zealand, Canada or the Netherlands.<sup>140</sup>

Packhouse efficiency requires a high level of coordination between the harvesting and the processing through the packhouse, taking into account the perishable nature of the product. The process of exporting citrus is a cold chain which must not be broken because maintaining the cold chain goes hand in hand with maintaining the value chain. A consistent supply of electricity is thus essential, which has been a problem under load-shedding and this has led to packhouses installing costly generators.<sup>141</sup>

Digitalisation has also changed the traceability and documentation, which has become central to compliance with sanitary and phytosanitary standards for export market access. To ensure compliance at the packing level of the value chain, packhouses follow strict protocols to ensure that the receipt, grading, packing, and refrigeration of fruit meets all parameters of food safety and quality, traceability and legality. They manage certifications and make sure that the farmers that they pack for meet local and international requirements.<sup>142</sup>

In addition, the need for improved processes of capturing, storing and sharing information for compliance purposes has driven the adoption of innovative digital platforms such as Phytclean in the fruit industry. In principle, digitalisation may reduce the costs of compliance for smaller producers and improve inclusion in exports. However, this is dependent on the

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<sup>137</sup> Interview with large producer-exporting farms/companies, 23 March 2020; 20 July 2020

<sup>138</sup> Interview with large producer-exporting farms/companies, 20 July 2020

<sup>139</sup> Interview with fruit marketing company, 04 September 2020

<sup>140</sup> Interview with large producer-exporting farms/companies, 20 July 2020; black citrus farmers, 16 September 2020

<sup>141</sup> Interview with large producer-exporting farms/companies, 20 July 2020

<sup>142</sup> Interview with large producer-exporting farms/companies, 23 March 2020; 20 July 2020; 29 June 2020

systems being developed and rolled out for the industry as a whole with the necessary infrastructure and the ability for the producers to make the necessary investments. Phytclean digitises the recording and ensures consistency in information to different markets. As of 2016, there were 1,400 registered users of the system in the citrus, table grape, pomegranate and stone fruit industries.

Similarly, the need to measure, monitor, track and report on growers' carbon footprint to ascertain their impact on the climate has driven the adoption of an online carbon-footprinting platform as part of the industry's Confronting Climate Change Initiative developed in 2008.<sup>143</sup> This is a carbon footprinting project to support producers through identifying and responding to the risks and opportunities associated with carbon emissions. Growers are able to complete a carbon calculator and ascertain their impact on the climate.<sup>144</sup> This tool enables growers to measure and report on these variables and show improvements over time. This is important for the citrus industry being an export industry and constantly under watch from the EU and activists in these countries.<sup>145</sup>

The extent of innovations and their application in the industry is due in large part to the investment by the industry body for shared benefit. The CGA, through the CRI, has the research and technical capacity, including skilled researchers, technical people and scientists, to conduct extensive research and provide technical services. Through its in-house research and development division, the CGA has played a central role in the industry in terms of meeting and maintaining the necessary Sanitary and Phyto-Sanitary (SPS) requirements for exports and in responding to concerns regarding possible pests and diseases which could block exports.

## **6.2 Innovation and upgrading in fruit processing**

Innovation at the fruit juice level involves investments in new equipment to increase plant capacity and keep up with new technologies to produce better quality products.<sup>146</sup> Given the limited amount of time between receiving and processing fresh fruit, manufacturing plants are investing in automated processes.

Innovation in the juice industry also takes the form of new juice flavours in order to keep abreast of changes in customer preferences, trends and taste profiles. Concentrate producers conduct research and development to produce new products.<sup>147</sup>

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<sup>143</sup> Interview with growers' industry association, 17 March 2021

<sup>144</sup> Interview with growers' industry association, 17 March 2021

<sup>145</sup> Interview with growers' industry association, 17 March 2021

<sup>146</sup> Interview with concentrate manufacturer, 27 May 2020

<sup>147</sup> Interview with medium-sized fruit juice mixing company, 10 March 2020



The ability to invest and upgrade is impacted by the tension between requiring steady supply of fruit to realise returns on investments and the variability in volumes of fruit as, being a “residual” industry, it depends on fallout fruit which does not make the grade for fresh sales.

## **7. Political economy of the growth of the citrus value chain**

The growth of fresh citrus exports has been due to a range of factors which underpin the changing varieties to enable increased soft citrus and lemon and lime exports, the related investments along the value chain and the improved capabilities in growing, packing and marketing, assessed above. The export growth stands out, not only from other fruits, but also more widely against other sectors in South Africa (Cramer and Chisoro-Dube, 2021; Andreoni et al. 2021). This brings into question the configuration of interests which enabled the coordination and collective actions required, as well as the interaction with the limited inclusion which has occurred.

While citrus marketing controls were swept aside in 1996 along with almost all other agricultural markets, and most co-operatives converted into private companies, it is evident that the sector’s success in terms of international competitiveness is not due to liberalized markets and competition. Instead, the combination of developments from the cultivar level through to the marketing of products into high-value markets is based on effective coordination. This has not been state-led, however. The citrus industry has not been a priority under successive government strategies until recently and has largely operated under the radar. However, the relationship between the government and the industry association has been central to ensuring that the systems are in place for the SPS standards to be met, for market access, logistics at ports, and for the funding of the CGA through the levy on exports.

The ability to take a medium to long-term perspective, to anticipate the changes and invest in the appropriate responses, is perhaps the central issue to explore in terms of the political economy, interests and coalitions which can make this happen.

### **7.1 Factors underpinning CGA’s contribution to the growth of the citrus industry**

The CGA stands out in terms of its effective coordination of different groups in the citrus industry and collective action with the government to ensure the appropriate industry support for sustained growth. What factors have underpinned the evolving role and capabilities of the CGA to coordinate and lead on the long-term measures for the export success? We identify factors in the historic origins of the CGA around the time of South Africa’s transition to democracy, the balance of interests in the CGA and across the industry, the resources which it has been able to leverage, the CGA’s research and technical capacity, and its accountability to growers.

#### ***Export orientation and capabilities***

The overriding focus of the CGA, from its origins, has been on longer-term export competitiveness. As explained in section 2, around 1999 the CGA was formed by growers with



the objective of opening-up access to export markets along with investments in research, development and technical facilities required for this. The export competitiveness imperative meant that the CGA could not be preoccupied with lobbying for protection and support in the local market and instead was oriented to building dynamic capabilities.

The imperative of export competitiveness set the agenda for investments in shared capabilities. The CGA has set up a number of companies to engage in research and capacity-building for the sector. These comprise of not-for-profit companies, providing shared services and support for growers, and companies run on a commercial basis selling products and services (at prices that may be lower than rivals) to earn returns which are re-invested back into the companies.

Through the CRI and River Bioscience, the citrus industry conducts its own industry research and unlike other fruit industries, it does not rely on the government-funded Agricultural Research Council for its industry research needs. The work of the CRI has grown substantially to lead research and development for the joint benefit of the industry, including skilled researchers, technical people and scientists. Through research and technical services, the CGA keeps abreast of constant changes in sanitary and phytosanitary standards critical for retaining markets and gaining new markets. This has required harmonisation and coordination across different players in the citrus industry.

Success of the citrus industry also stems from the ability of different players in the industry to apply industry research and to comply with requirements of importing countries. This has seen a lot of improvement within the industry in terms of getting information back to the grower regarding export processes and requirements, and the growers applying this information to the orchards. This is critical for market access, especially with the growing prevalence of pests and diseases, which are some of the biggest trade barriers to export markets. With de-regulation of the industry, a high level of coordination and working together is necessary to maintain market access.

### ***Representation of growers, balancing interests and building a broad coalition***

Coordination through the CGA representing growers has been critical for growth of the industry and has ensured that the interests of the most diversified, dispersed value chain participants with the least power are represented. This coalition has a common recognition of the key factors required for success and is oriented to upgrading and building capabilities in premium product segments.

Political and social sustainability requires inclusion and balancing various interests in order to sustain a broad coalition. The CGA reflects a diversity of growers – large, small and medium growers and black growers. Furthermore, the CGA's governance structure ensures inclusiveness of every grower that is paying a levy with each citrus growing region in the country having a seat on the CGA board.

The CGA has also been successful in building an inclusive coalition through establishing structures to support black citrus growers through the Citrus Academy and the Grower Development Company providing skills development and capacity building. While the CGA has recorded successes, progress on inclusion needs to accelerate. The overall growth of citrus points to opportunities which could be realised with the appropriate support.

Advancing land reform with value creation requires close networks and links with value chain actors to ensure investment and building of long-term capabilities. The case of citrus in South Africa illustrates that inclusion in global value chains for value creation is possible if interests of formerly excluded participants are effectively integrated into locally coordinated systems of upgrading. A focused collaborative approach between industry and government will go a long way to bring the necessary resources to bear to enable black citrus farmers to grow and thrive in export markets.

On an industry level, the CGA works with other non-member value chain participants including cultivar companies, nurseries, packhouses and marketing companies due to the organisation's export marketing objectives. The industry reflects the absence of clearly dominant firms in the value chains which could look to short-term value capture (rent extraction) at the expense of value creation. For example, the highest levels of concentration are at the level of the cultivar companies and crop protection products. To instil competition in the citrus cultivar industry, the CGA formed their own company CGACC to provide growers with timely access to cultivars both open and propriety, on reasonable terms and conditions as an alternative to private commercial companies.<sup>148</sup> Due to cultivar companies' degree of market power, including due to the rights they have on protected varieties, they can charge growers substantial royalties, limiting access to new and improved varieties to growers. Although the CGA Cultivar Company has a few cultivars that it is managing and it is not yet established in the space, the CGA considers this project as a long-term measure towards export competitiveness.<sup>149</sup>

Similarly, at the crop protection level of the value chain, the CGA formed the River Bioscience company to keep control of the prices of crop protection products by developing a competing alternative. CGA's Cryptogran competes with Cryptex, a product produced by Monsanto (a Swiss company). The Cryptex prices were high and hence it was important for CRI to develop a competing alternative to instil competition and ensure that Cryptex is priced reasonably to the growers.<sup>150</sup>

### ***Collective action with government***

Central to the citrus industry's success is the ability of the CGA to build relationships with various government departments to ensure appropriate industry support. The industry

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<sup>148</sup> Interview with growers' industry association, 17 March 2021

<sup>149</sup> Interview with growers' industry association, 17 March 2021

<sup>150</sup> Interview with growers' industry association, 17 March 2021

coordination to maintain and expand export markets, tariffs and trade barriers, and the associated factors such as efficient transport arrangements, were a foundation on which the industry could build in partnership with the government.

The CGA has been effective in building and maintaining strong links with government concerning industry issues as evidenced in the approval of higher levies and market access support. The government plays a key role in the signing of trade agreements and the industry relies on the government's involvement in gaining market access. During the trade negotiations, the industry represents local producers, and it has the technical and skilled people providing feedback on issues such as pests and diseases.

### ***Access to resources and accountability to industry***

The CGA inherited a situation where levies had been imposed on exporters to fund research and market access for collective benefit. The levies ensured independent and ongoing resources while also holding the CGA accountable for using the resources in ways that are of most benefit to the industry as a whole. The government's approval of the payment of statutory export levies to the CGA in 2001 entrenched its position in the industry, providing it with substantial independent financial resources which it invests into research and technical support (in the CRI), market access and transformation. The government enabled the CGA to play the coordinating role through authorising the levies and in its activities in research and international markets.

## **7.2 Factors limiting SAFJA's coordination role at the fruit processing level**

### ***Balancing competing interests in the industry***

While the CGA reflects a coalition with common interests across a diversity of members with a common recognition of the key factors required for success, the fruit juice industry body – SAFJA – struggles with balancing different interests in the industry or value chain. As SAFJA covers the whole value chain from primary processors to bottlers, there are tensions and conflicts of interest between different players which SAFJA has to balance. For example, there is constant tension between concentrate producers and juice-mixing companies over the price of concentrate and imports of concentrate. During drought periods primary processors cannot supply sufficient quantities to juice-mixing companies and bottlers, and the bottlers are naturally opposed to the 20% import duty on imports of concentrate. On the other hand, the concentrate producers benefit from the import protection which they argue is necessary to sustain the industry.<sup>151</sup> There is also tension between the processing industry and the growers.

### ***Limited inclusion of small and medium-sized processors***

The fruit juice industry is also characterised by limited inclusion as reflected by SAFJA's membership, which comprises of about twenty to twenty-five large processing companies.

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<sup>151</sup> Interview with concentrate manufacturer, 17 February 2020

These are the large concentrate producers and bottling (juice-mixing) companies. SAFJA has few small members<sup>152</sup> and the organization struggles in getting small members to join the organisation. Given the relatively low barriers to entry on the bottling side, SAFJA provides financial and technical assistance to small juice-mixing companies, including waiving membership fees for the first year as a strategy to get small companies into the association.

### ***Industry relations with government***

In addition to the challenges of limited capacity in government, the industry body struggles in dealing with the silos in government, with each department working in isolation. Some of the issues that SAFJA needs to ensure industry support run across different departments. For instance, with sugar taxes, different departments are involved, and they each have different interests. These include the Department of Health pushing for people to reduce sugar intake, the Department of Finance pushing for more taxes, the Department of Trade, Industry and Competition pushing for more support of the sugar industry, which is struggling. As such, not only is it difficult for the industry body to get consensus across the three departments, but it is also difficult to access the three departments to get a total picture on certain issues.<sup>153</sup>

Lastly, limited access to country-wide laboratory infrastructure to conduct tests, and a lack of technical expertise and educational facilities in place to support the industry, poses challenges for the industry. The industry sends their products overseas for testing, which is costly. Investment in testing equipment could be used to service other countries in the region, creating a regional hub for technical infrastructure.<sup>154</sup>

### **7.3 Government policies**

With the rapid liberalization of agricultural markets, citrus was in a better position than many other crops. There was a well-established base and it had not been as heavily supported or protected as other sectors. In addition, as a higher-value and differentiated product, it was not subject to the same degree of price volatility in the domestic market as commodities such as maize, which went from stable prices and marketing arrangements to being exposed to the high levels of volatility in international commodity markets.

However, despite evidence of dynamism in fruit production, overall growth of the South African fruit industry has been constrained by widespread underinvestment in key infrastructure including ports, roads, water and telecommunications. The high levels of congestion and delays at South Africa's main ports, due to machinery breakdowns caused by ageing and worn-out infrastructure, have hampered port operations and increased costs for fruit exporters. Similarly, the historical underinvestment in water resources and inadequate maintenance of water infrastructure, especially in rural areas, have caused water shortages in agriculture, forcing the industry to be conservative with new plantings (Cramer and

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<sup>152</sup> Interview with small juice-mixing company, 17 February 2020; medium-sized juice-mixing company, 10 March 2020; fruit juice industry association, 14 October 2020

<sup>153</sup> Interview with fruit juice industry association, 14 October 2020

<sup>154</sup> Interview with fruit juice industry association, 14 October 2020

Chisoro-Dube, 2021). The government has put on hold several infrastructure projects around water resources, with others in the pipeline and have not made necessary repairs. For example, the government, after tearing down three metres of Tzaneen Dam in Limpopo, ran out of money and could not build-up the dam again.<sup>155</sup> Also, on-farm infrastructural investments from the government, including multipurpose sheds and irrigation systems, are lacking and happening at a slow pace. In some cases, where the government invests, there is a mismatch in investments. For example, the government builds a citrus packhouse but there is no farm production to make use of such investments.<sup>156</sup>

The government's policies and investments within the fruit industry (and agriculture more broadly) have been more focused on inclusion of black farmers in citrus production. Through the land reform programme, the government has prioritised the participation of small and medium black farmer businesses. The industry's priority on the other hand, has been around quality, growth, and increased market access. This underlying tension has limited overall growth and inclusion (Cramer and Chisoro-Dube, 2021).

The inclusion of black citrus growers has also been limited by a range of factors which need to be addressed. While the government has been instrumental in purchasing land for beneficiaries, there have been widely reported challenges with the land reform process including the pace at which it has proceeded, the granting of title deeds, and the provision of appropriate support for building capabilities (Presidential Advisory Panel on Land Reform and Agriculture, 2019). The lack of title deeds to land ownership by beneficiaries limits access to finance.<sup>157</sup> Key institutions, notably the Land Bank, have not functioned effectively. These are not specific to citrus.

In addition, there are challenges in terms of improving the effectiveness of support for the investment and capabilities required to build long-term competitiveness, rather than piecemeal initiatives. The level of support provided by the government to land reform beneficiaries is limited in scale and scope. This creates a situation whereby black farmers are dependent on the government for both operational finance and on-farm fixed investments. Limited incentives by the banks to fund agriculture, which they view as a risky project, especially among black growers, exacerbates the challenges of access to finance.<sup>158</sup> Closely related is the government's ineffective role in partnership programmes between commercial farmers and black farmers aimed at building long-term capabilities and securing investments.

Farmers also cite challenges related to limited regulatory support from the government in terms of acquiring government services such as water rights, Environmental Impact Assessments and drawing electricity to the farms. It takes a lengthy period for farmers to process regulatory requirements. This speaks to limited or lack of inter-governmental coordination between departments, which limits the efficiency with which farmers are

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<sup>155</sup> Interview with growers' industry association, 17 March 2021

<sup>156</sup> Interview with a co-operative, 07 August 2020

<sup>157</sup> Interview with large producer-exporting company, 18 September 2020; black citrus farmers, 23 March 2020; 30 July 2020; 04 September 2020; 15 September 2020

<sup>158</sup> Interview with a co-operative, 07 August 2020

assisted. For example, water rights are applied for at the Department of Water Affairs and it takes approximately 10 months for a farmer to get water rights. After the farmer acquires water rights, they submit the application to the Department of Environmental Affairs, which takes another 6–8 months to issue an Environmental Impact Assessment. In some cases, it happens that when a farmer is at an advanced stage of the process of applying for water rights, they are instructed to first acquire an Environmental Impact Assessment. This means that the farmer would have wasted time and resources they initially spent on applying for water rights.

## **8. Conclusion and implications**

Citrus in South Africa stands-out in terms of its export-led growth and employment generation, by comparison with other fruits, and with agro-processing. The sector's success has been built on a combination of upgrading to higher-value varieties to meet changing international preferences, innovation and building shared capabilities along the value chain and effective collective action to meet international standards and ensure market access. Processing, mainly in the form of juice, is of much lower value than fresh fruit and is subject to large scale economies. There have been improvements in terms of inclusion, especially at the farmer level, however, many challenges remain in this area.

The industry growth which is based on meeting export market requirements has involved developing the cultivars and ensuring the supply of varieties of trees to farmers through a network of nurseries to enable the planting of larger areas with high-value varieties. There has been a substantial shift to soft citrus varieties and growth in production of lemons and limes. Lead South African firms have built strong international relationships to source cultivars and to support digitalisation through the value chain.

The international competitiveness has been underpinned by improved irrigation systems to manage water and the supply of nutrients to trees, and investment in improved packhouses, cold chain logistics and marketing. The growing impact of climate change means investments to adapt are even more important. It is also necessary to anticipate the changes which may be necessary in where and how citrus is grown most sustainably. This has gone along with innovations such as the development of the Phytclean platform, in which growers, packhouses, exporters and supply chain service providers use the digital platform technology to capture, store, and report data for export phytosanitary certification. Phytclean digitizes the recording and ensures consistency in information to different export markets. The platform has been extended from citrus to other fruits.

Rather than the far-reaching liberalization stimulating the response of individualized economic agents to market signals, the citrus sector's success has been based on a major re-organisation of the industry's coordination around the CGA to take over the roles which had been played by the Control Board and Outspan under apartheid. The CGA's effective leadership is due to it unambiguously representing growers' interests, even while these are the most dispersed group in the value chain, with relatively high levels of concentration in the

development and supply of cultivars, key inputs such as agro-chemicals, and in export marketing and logistics.

The CGA has had sustained and growing resourcing through a compulsory levy on exports which has been used for investment in shared services and support. The CGA has been an entrepreneurial institution-builder. It has established a set of non-profit institutions for skills and technical capabilities, market access and meeting standards. It has also set-up entities operating on a for-profit basis in crop protection products and cultivar supply. These include businesses to ensure rivalry with those perceived to be dominant input suppliers, to provide inputs on a reasonable commercial basis with profits ploughed back into the businesses.

The priorities of the CGA are set through the approval process of the levies every four years, with support required by both its members and by the government, in what can be represented as a form of 'growth coalition' (or political settlement for shared value creation). This has been combined with a medium-term view adopted by growers given the time for developments to feed through to production and for market access to be negotiated.

The recognition of the priorities of the government, led to a series of initiatives to support black farmers who have acquired land from the end of apartheid through various means including redistribution and restitution measures. This has included the establishment of the Citrus Growers Development Company which receives an earmarked 20% of the levies.

The challenges of achieving greater inclusion in South Africa are closely related to addressing the legacy of apartheid on patterns of land ownership and investment in commercial agriculture, and less related to opening-up participation to businesses identified as excluded due to their size, as such. The progress of land reform in citrus producing areas, as with the country in general, has been slow and uneven. Where land has been transferred, the new owners have often not received title deeds for a number of years. Black farmers allocated land may or may not have been employed on citrus farms, however, they nevertheless need time and resources to build the know-how, systems and capabilities to succeed in higher value markets, as well as to make the linkages into packing and marketing where a very substantial portion of the value resides. These linkages are critical and there have been various arrangements and partnerships to attempt to include black farmers into the value chains. Regionally located cooperatives have played the partnership role in some cases. The CGDC has also improved through experience in the support to farmers with the results from the learning-by-doing evident in a 40% increase in production attained in the 2019–20 citrus season.

In terms of the wider returns from citrus, a sizeable proportion of employment in citrus is seasonal and low-skilled at the same time as technological advances are placing a premium on skills and higher earnings for a small proportion of specialists. Advances in varieties and growing technologies can extend the growing seasons, which support year-round employment. The packhouse and logistics operations can also be utilized for more of the year with a mix of crops being produced in the same area.



The successes in value creation and exporting in citrus points to the potential for coordinated strategies and support for capabilities along high-value fruit value chains to realise inclusion with innovation. Notwithstanding the many challenges with land reform, black farmers have participated in export markets through the CGDC and with strategic partnerships. This points to an evolving political settlement supporting the longer-term building of broader participation which needs to accelerate if the sector is to reflect the dispensation in South Africa which would see it being an example of inclusive growth and innovation in agriculture and agro-processing.

## References

Andreoni, A., Mondliwa, P., Roberts, S. and Tregenna, F. (2021). *Structural transformation in South Africa – the challenges of inclusive industrial development in a middle-income country*. United Kingdom: Oxford University Press.

Chisoro-Dube, S. and Roberts, S. (2021). Industry associations as growth coalitions: Lessons from South Africa’s citrus industry ‘we need to talk about citrus!’ CCRED Policy Brief.

Johannesburg: CCRED Available:

[https://static1.squarespace.com/static/52246331e4b0a46e5f1b8ce5/t/608bb7e3cbcc0f48506dbbaa/1619769317192/IDTT+4\\_PB1\\_Citrus+Industry.pdf](https://static1.squarespace.com/static/52246331e4b0a46e5f1b8ce5/t/608bb7e3cbcc0f48506dbbaa/1619769317192/IDTT+4_PB1_Citrus+Industry.pdf)

Citrus Growers Association Annual Report. (2007). Available:

<https://3b5dca501ee1e6d8cd7b905f4e1bf723.cdn.ilink247.com/ClientFiles/cga/CitrusGrowersAssociation/Company/Documents/CGA%20Annual%20Report%20-%202007%20web.pdf>.

Citrus Growers’ Association Grower Development Company. (2020). Presentation: <http://cga-gdc.org.za/>.

Cole, M.M. (1954). The growth and development of the South African citrus industry. *Geographical Association* Vol. 39 (2) pp. 102-113.

Cramer, C. and Chisoro-Dube, S. (2021). The industrialization of freshness and structural transformation in South African fruit exports. In *Structural Transformation in South Africa: Sectors, Politics and Global Challenges*, edited by Antonio Andreoni, Pamela Mondliwa, Simon Roberts, and Fiona Tregenna, Oxford: Oxford University Press.

Cramer, C. and Sender, J. (2019). ‘Oranges are not only fruit: The industrialization of freshness and the quality of growth’. In *The Quality of Growth in Africa*, edited by Kanbur, R., A. Noman, J. Stiglitz, New York: Columbia University Press.

Department of Land Affairs. (1997). White Paper on South African Land Policy April 1997. Available:

[https://www.gov.za/sites/default/files/gcis\\_document/201411/whitepaperlandreform.pdf](https://www.gov.za/sites/default/files/gcis_document/201411/whitepaperlandreform.pdf).



Department of Land Affairs. (2006). Implementation plan for the Proactive Land Acquisition Strategy. Available:

[https://www.gov.za/sites/default/files/gcis\\_document/201409/impllandacquisition0.pdf](https://www.gov.za/sites/default/files/gcis_document/201409/impllandacquisition0.pdf).

Department of Rural Development and Land Reform. (2019). 25-year review 1994–2019. Available:

[https://www.gov.za/sites/default/files/gcis\\_document/201911/towards25yearreview.pdf](https://www.gov.za/sites/default/files/gcis_document/201911/towards25yearreview.pdf).

Kepe, T. and Hall, R. (2016). Land Redistribution in South Africa: Commissioned report for High Level Panel on the assessment of key legislation and the acceleration of fundamental change, an initiative of the Parliament of South Africa.

Mather, C. (1999). Agro-commodity chains, market power and territory: re-regulating South African citrus exports in the 1990s. *Geoforum*, 30(1), 61–70.

Mather, C. and Greenberg, S. (2003). Market liberalisation in post-apartheid South Africa: The restructuring of citrus exports after 'deregulation'. *Journal of Southern African Studies*, 29(2), 393–412.

Presidential Advisory Panel on Land Reform and Agriculture. (2019). Final report of the Presidential Advisory Panel on Land Reform and Agriculture. Available:

[https://www.gov.za/sites/default/files/gcis\\_document/201907/panelreportlandreform\\_0.pdf](https://www.gov.za/sites/default/files/gcis_document/201907/panelreportlandreform_0.pdf).

Roberts, S. (2004). 'The role for competition policy in economic development: the South African experience', *Development Southern Africa*, 21(1), 227–243.

Roberts, S. (2012) 'Administrability and business certainty in abuse of dominance enforcement: an economist's review of the South African record', *World Competition*, 35(2), 269–296

Sandrey, R. and Vink, N. (2008). Trade and innovation project. Case study 4: Deregulation, trade reform and innovation in the South African agricultural sector. Working paper no. 76. Organisation for Economic Cooperation Development.

Vilakazi, T., S. Goga and S. Roberts (eds) (2020) (eds) *Opening the South African Economy? Barriers to Entry, Regulation and Competition*. Cape Town: HSRC Press.

## Annex: List of interviewees

Organisation	Classification	Location
Giants Canning	Canning	Gauteng
Orange River Concentrate	Concentrate manufacturer	Northern Cape

Frugi Fruit Juice	Juice-mixing	Gauteng
Vivit Foods	Fruit preparations	Gauteng
Take 5	Juice-mixing	Gauteng
Sir Fruit	Fruit juicing	Gauteng
Onderberg	Concentrate manufacturer	Mpumalanga
Granor Passi	Concentrate manufacturer	Limpopo
SAFJA	Fruit juice industry association	Western Cape
Industry expert	Traceability expert	Gauteng
Zebediela Citrus	Grower	Limpopo
Lona Group - New Dawn & Masalal Packhouse	Grower-packhouse	Limpopo
Individual farmer	Grower	Limpopo
Dinaledi Farming Enterprises – Dinaledi Packhouse	Grower-packhouse	Limpopo
Piet Citrus	Grower	Limpopo
Halls	Grower-packhouse	Mpumalanga
Green Terrace	Grower	Gauteng
Entabeni	Grower	Eastern Cape
Mbuyelo Plas Citrus Farm	Grower	Eastern Cape
White Citrus Farm	Grower	Eastern Cape
Ripplemead Farm	Grower	Eastern Cape
Lizilor Farms - Mariveni	Grower	Limpopo
Sundays River Farming Trust	Grower	Eastern Cape
Market Demand Fruits	Fruit Marketing Company	Western Cape
Orange Chain	Fruit marketing company	Eastern Cape
Stargrow	Cultivar development & management	Western Cape
Biogold Citrigold SA	Cultivar development & management	Western Cape

Du Roi Nursery	Tree nursery	Limpopo
Casmar Citrus Nursery	Tree nursery	North West province
The Humansdorp Co-op	Co-operative - input supplier	Eastern Cape
Villa Crop Protection	Crop protection chemicals	Gauteng
Croplife SA	Crop protection solutions industry association	Gauteng
Gamtoos Irrigation Board	Irrigation water board	Eastern Cape
Citrus Growers' Association	Growers' industry association	Kwa Zulu Natal
Limpopo Department of Agriculture and Rural Development (LDARD)	Provincial Agriculture Department	Limpopo
Vhembe District Municipality	District Agriculture Department	Limpopo
Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	Provincial Agriculture Department	Mpumalanga
Industrial Development Corporation	Government finance institution	Gauteng



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