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The Economic Contribution of South Africa's Pomegranate Industry

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This report was compiled by the Division for Macro & Resource Economics of the Western Cape Department of Agriculture (WCDoA) in collaboration with the Pomegranate Producers Association of South Africa (POMASA).

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EXECUTIVE SUMMARY

The South African pomegranate industry has shown remarkable growth over the past decade, both in terms of area planted and the gross value of production. The industry links well with the National Development Plan's (NDP) focus on growth in high-value export crops with strong employment potential. This assessment of the economic contribution of the pomegranate industry in South Africa shows that for every additional hectare planted, 1.7 fulltime jobs are created on farms and around R150 000 additional capital investment and an average of R247 000 in operational cost is invested into the agricultural economy. Since 2015 the industry has contributed to an estimated R25 million capital expenditure and the expansion of this industry since inception has resulted in around 2 000 additional jobs being created across the value chain. The results show that if upstream and downstream activities are included, every additional hectare established will ultimately lead to 1.92 fulltime jobs to the South African economy. The contribution towards growing South African exports has shown that pomegranates are highly competitive, with the value of exports growing from R33 million in 2012 to R125 million in 2020.

The global analysis shows South Africa's unique entry point into the market at a time when only Southern hemisphere producers can supply the market, from March to June. With global demand driven by consumer preferences towards healthy diets, convenience meals and growth in the use in food manufacturing, South Africa is well positioned to supply pomegranates to global markets. Prospective investors, exporters and growers should consider the farm-level economics presented in this report to support decision making and planning. Government should continue to pursue greater market access facilitation for the industry and post-harvest efficiency gains can further strengthen competitiveness.

1. INTRODUCTION

Pomegranates (*Punica granatum*) are one of the world's oldest known fruits and are deeply embedded in the cultures of the Mediterranean region. It is not only savoured as a delicacy and healthy food source, but is also greatly appreciated for its medicinal properties (Stover & Mercure, 2007). The South African pomegranate industry has in recent years developed into an expanding, well-organised, export industry. This has led to the creation of many jobs on farms, in pack houses and in various agri processing facilities. This deciduous fruit presents opportunities for economic growth, especially since the demand for the product has grown in recent years and presents diversification opportunities for fruit farmers in the midst of the impacts associated with climate change.

Surprisingly, there is very limited information readily available on global pomegranate production, with South Africa being one of the most advanced when it comes to gathering detailed information on the area planted and volumes harvested. This is to a large extent due to targeted interventions to develop the industry, supported by the deciduous fruit industry body (Hortgro), as well as initiatives such as the Alternative Crop Fund (ACF) which supports research and development and is funded by the Western Cape Department of Agriculture (WCDoA).

In an attempt to provide market insights on this industry in support of business planning, policy formulation and decision-making, the aim of this report is two-fold. **First**, the global market overview compiles information from various sources to understand the dynamics of supply and demand for pomegranates, followed by a detailed trade analysis. **Second**, the South African pomegranate industry overview provides the most recent information of the structure, as well as the contribution of the industry in relation to economic growth, exports, job creation and value chain linkages. This analysis is supported by semi-structured interviews from various industry role players, as well as information obtained from both primary and secondary sources. The South African trade analysis points to emerging market opportunities for South African growers and exporters and market access considerations.

This report is therefore aimed at providing important intelligence on the South African pomegranate industry and to be used as a resource to assist in decision-making and planning.

2. GLOBAL PRODUCTION

The pomegranate is a shrub or small tree belonging to the *Punicaceae* family and is widely grown in many tropical and subtropical countries, especially in temperate agro-climatic condition such as in Mediterranean regions (Varasteh et al., 2009). It can be grown as evergreen plants in the tropics or as deciduous fruits in temperate zone and bears fruits which have a reddish and thick skin. Inside the skin is the edible part, which consist of several hundred small seeds or arils (CBI, 2020). This ancient fruit is native to the area from Iran to the Himalayas in northern India and is mentioned in the earliest writings and often associated with symbolic and spiritual significance. More recently, evidence has pointed to its health benefits both in the form of nutritional and therapeutic values due to the presence of several bioactive compounds (Chandra et al., 2010). Indeed, the recent surge in commercial cultivation in various countries is in response to large demand growth and the economic opportunities presented by pomegranates. Every part of the pomegranate plant, from the root, trunk bark, wood, sprouts, leaves flowers, fruit, rind and seeds have economic value.

Any analysis on global supply of pomegranates is made difficult by the lack of readily available, consistent and updated information on the area planted and production volumes of leading producing countries (Ergun, 2012). Furthermore, pomegranates do not have a unique Harmonised Code (HS codes) which is used to trace global trade patterns but is grouped with several other fruits under HS: 081090 with the heading: Other fresh fruit-Other¹. Thus, the only way of analysing world production and trade is to specifically mine data from various statistical agencies, news reports and producer or export associations, whilst also extracting trade data using the detailed tariff lines which are determined by each country independently. According to Ergun (2012), pomegranates are grown worldwide on all continents, with the exception of Antarctica, but only a small group of countries produce this crop commercially. Table 1 reports the findings from the analysis, ranking the major commercial producers according to the harvested tons and provides the area planted for the specified year of the latest available data. Global area planted for pomegranates is estimated at 835 950 hectares, producing 8.1 million tons of fruit (average yield of 9.69 tons per hectare).

India is the world's largest producer of pomegranates by some margin with 3 million tons produced on 262 000 hectares. Production volumes have continually increased over the

¹ This category normally includes fruits such as tamarinds, pomegranates, rambutan, lychees, passion fruit, dragon fruit, longans, jack fruit and similar.

past decade, growing by 5% per annum due to strong demand both in local markets and for export (NHB, 2020; FreshPlaza, 2016). China and Iran were the second and third largest producers in the world with 1.2 million and 915 000 tons respectively (Yuan & Zhao, 2019; Financial Tribune, 2016). Thus, around 70% of world production comes from the top three countries, producing pomegranates on an estimated 476 000 hectares with a combined average yield of 10.8 tons per hectare.

Other major producing countries includes Turkey, Egypt, the United States of America (USA), Afghanistan and Azerbaijan. South Africa's production of 12 894 tons in 2019 makes it one of the smallest commercial producing countries, but still a major player amongst those located in the Southern Hemisphere (Peru, Chile, Argentina and Australia).

Table 1: World pomegranate production

Country	Year	Hectares	Total Production (Tons)	Export Tons (2019)	Source
India	2019	262 000	3 034 000	67 891	(NHB, 2020)
China	2017	120 000	1 697 100	12 602	(Yuan & Zhao, 2019)
Iran	2016	94 000	915 000	11 498	(Financial Tribune, 2016)
Turkey	2019	28 587	559 171	155 189	(TurkStat, 2018)
Egypt	2019	33 096	380 000	127 447	(AOAD, 2018)
USA-California	2018	8 606	218 052	28 091	(CDFA, 2020)
Afghanistan	2019	18 018	194 386	39 056	(MAIL, 2019)
Azerbaijan	2019	22 948	181 060	22 267	(SSCRA, 2019)
Morocco	2012	12 300	115 000	-	(Article19, 2018)
Tunisia	2019	13 257	98 045	10 416	(Agridata.tn, 2019)
Algeria	2017	91 900	84 870	-	(AOAD, 2018)
Iraq	2017	5 970	82 370	-	(AOAD, 2018)
Tunisia	2017	88 600	78 000	10 416	(AOAD, 2018)
Spain	2019	5 645	72 115	53 803	(MAPA, 2019)
Syria	2017	5 450	69 820	-	(AOAD, 2018)
Saudi Arabia	2017	1 230	65 310	3 874	(AOAD, 2018)
Italy	2017	4 000	60 000	-	(Mincuzzi et al., 2020)
Peru	2019	2 327	48 320	40 191	(FreshPlaza, 2020)
Greece	2018	4 189	41 888	16 624	(GSA, 2018)
Pakistan	2018	7 300	37 300	-	(AMIS, 2019)
Israel	2013	2 500	31 250	9 528	(IsraelAgri, 2015)
South Africa	2019	1 024	12 984	6 369	(POMASA, 2019)
Chile	2015	705	12 000	5 325	(Freshfruitportal, 2015)
Argentina	2014	800	10 000	2 207	(FreshPlaza, 2015)
Mexico	2019	1 068	7 144	3 016	(BlogAgricultura, 2019)
Australia	2019	400	4 000	526	(FreshPlaza, 2018)
Total		835 920	8 109 095	626 336	

Source: Included in table

Table 1 highlights an important dynamic in the world market for pomegranates in that the nations with the largest supply are also the ones with largest consumer markets. This is clearly reflected in the fact that of the 8.1 million tons produced, only 626 336 tons were exported (8%). The main reason for this is that India, China and Iran, as well as other large producing Arab nations, have large and growing populations with a high per capita consumption for this fruit compared to other countries. The fruit is very popular due to its health benefits and since it is readily available and often produced throughout large parts of these growing regions. The fruit is also natively grown in these parts and the cultural embeddedness and importance in their history is possible explanations.

Although the lack of data limits showing changes in world production for every country listed in Table 1, Figure 1 shows the trends of production volumes between 2012 and 2019 for the world's leading pomegranate producing countries. Their total combined production has grown from 2.5 million tons in 2012 to 5.8 million tons in 2019, which represents an average annual growth of 12.6% over this period. This increase in the global supply was largely driven by strong growth in India and Egypt's pomegranate production (21.6% and 22.6% annual growth respectively).

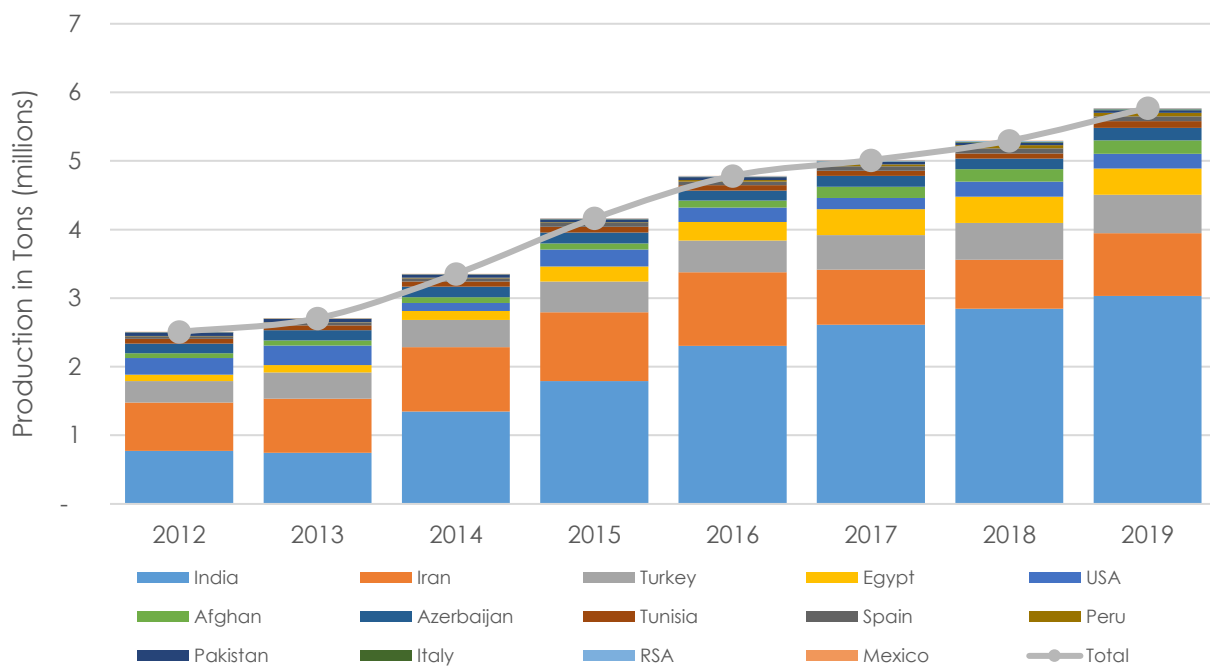


Figure 1: Leading pomegranate producing countries, 2012-2019

Source: Own compilation from various (see Table 1)

As noted earlier, there is quite a significant difference in the number of major producing countries as pointed out in Table 1, compared to a much smaller number involved in pomegranates. Furthermore, the biggest suppliers were also not the biggest exporters.

Figure 2 shows the leading exporting nations in terms of the volumes traded between 2012 and 2019². Turkey's 155 000 tons of pomegranate exports in 2019 made it the biggest exporter with 23% of global exports, followed by Egypt (19%) and India (10%) (ITC, 2020). World pomegranate exports grew from 450 thousand tons in 2012 to around 668 thousand tons in 2019, with the strongest growth coming from Peru and Afghanistan. Interesting to note is the absence of both China and Iran amongst the major exporters, the world's second and third largest producers. Although China's sizeable export volume of 12 602 tons made it the 8th biggest exporter, this is only 0.7% of their total production, and for Iran this share was only slightly higher at 1.2%. The large demand in China sees local markets take preference over international markets, whereas in the case of Iranian pomegranates the fruit is destined for domestic markets due to challenges faced in exporting goods as a result of economic sanctions (Kahramanoglu, 2019).

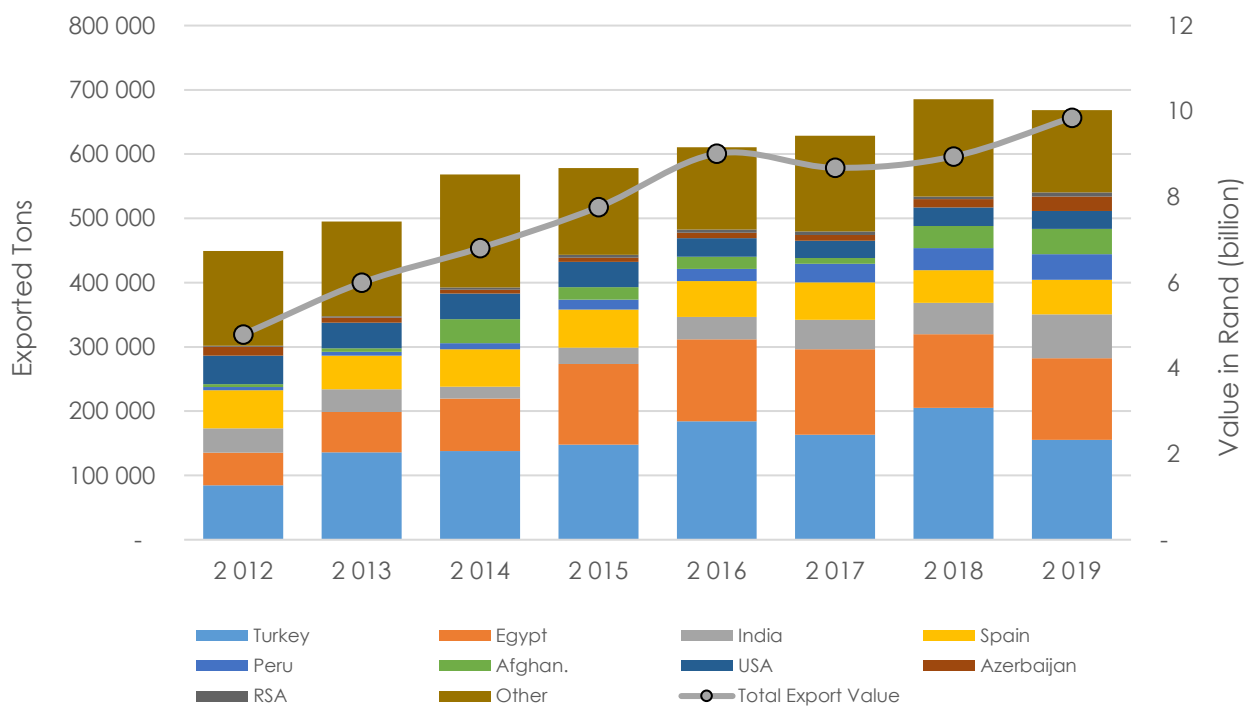


Figure 2: Leading pomegranate exporting countries, 2012-2019

Source: Own compilation from various including ITC, 2020

In value terms, world pomegranate exports have grown 11% per annum in nominal terms, reaching R9.85 billion in 2019, compared to R7.8 billion in 2012 (ITC, 2020). This implies that the average price for an exported ton of pomegranates reached R14 736 per ton in 2019, up from R10 760 per ton in 2012.

² This excludes major exporting countries such as the Netherlands, Germany and France which mainly export important goods from elsewhere throughout Europe

Pomegranates are a perishable fruit, and the market is therefore influenced by when products are available. Table 2 shows the seasonality of when pomegranates are available from the various major producing countries, highlighting in dark green in which months pomegranates are harvested. There will be some overlap between months, especially since new varieties and production practises can extend the growing season. India's climate allows for production throughout a large part of the year, whilst the norm is around 4-5 months or shorter. The availability of pomegranates is like other fruits dependent on whether production is in the Northern or Southern Hemisphere, which presents a window of opportunity to deliver products at a time when global supply is low.

This is where South Africa has a particular advantage with harvest taking place between March and June. Linking Table 2 to what has been shown in Table 1 shows that a large proportion of world production is concentrated in the Northern Hemisphere, which implies that world demand between March and June can only be supplied by a small number of producing countries in the Southern hemisphere such as South Africa, Peru, Chile, Argentina and Australia.

Table 2: Global availability of pomegranates

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
India	Dark Green	Dark Green	Dark Green	Dark Green	Light Green						Dark Green	Dark Green
Iran								Dark Green	Dark Green	Dark Green	Dark Green	Dark Green
Turkey	Dark Green	Dark Green	Light Green						Light Green	Dark Green	Dark Green	Dark Green
USA	Dark Green	Light Green								Light Green	Dark Green	Dark Green
Afghanistan	Dark Green	Light Green									Dark Green	Dark Green
Azerbaijan	Dark Green	Light Green								Light Green	Dark Green	Dark Green
Peru			Light Green	Dark Green	Dark Green	Dark Green	Dark Green					
Italy	Dark Green								Light Green	Dark Green	Dark Green	Dark Green
South Africa			Dark Green	Dark Green	Dark Green	Dark Green	Dark Green					
Israel	Dark Green	Dark Green	Light Green					Light Green	Dark Green	Dark Green	Dark Green	Dark Green
Spain	Dark Green	Dark Green								Light Green	Dark Green	Dark Green
Tunisia	Dark Green	Light Green							Light Green	Dark Green	Dark Green	Dark Green
Australia			Light Green	Dark Green	Dark Green	Dark Green						
Argentina				Dark Green	Dark Green	Dark Green	Dark Green					

Source: Kahramanoglu, 2019

To further illustrate the impact that seasonal supply has on the global pomegranate market, Figure 3 shows the monthly export volumes of the major exports. On the right axis the average prices received for those exports are given, showing which month of the year higher prices are prevalent in the market. Clearly, when higher volumes of the larger producers from the North are exported the price drops significantly. These are normally the months between October and February. Then, as volumes starts to taper off in March, the

export unit prices increase towards June, which reached a peak of R30 085/ton in 2019. This is where South Africa and Peru are able to supply importing countries with pomegranates and the further the production season can be pushed past April, higher prices are rewarded. However, different markets prefer specific varieties and premium price points in specific markets can be realised being either early or late in the market.

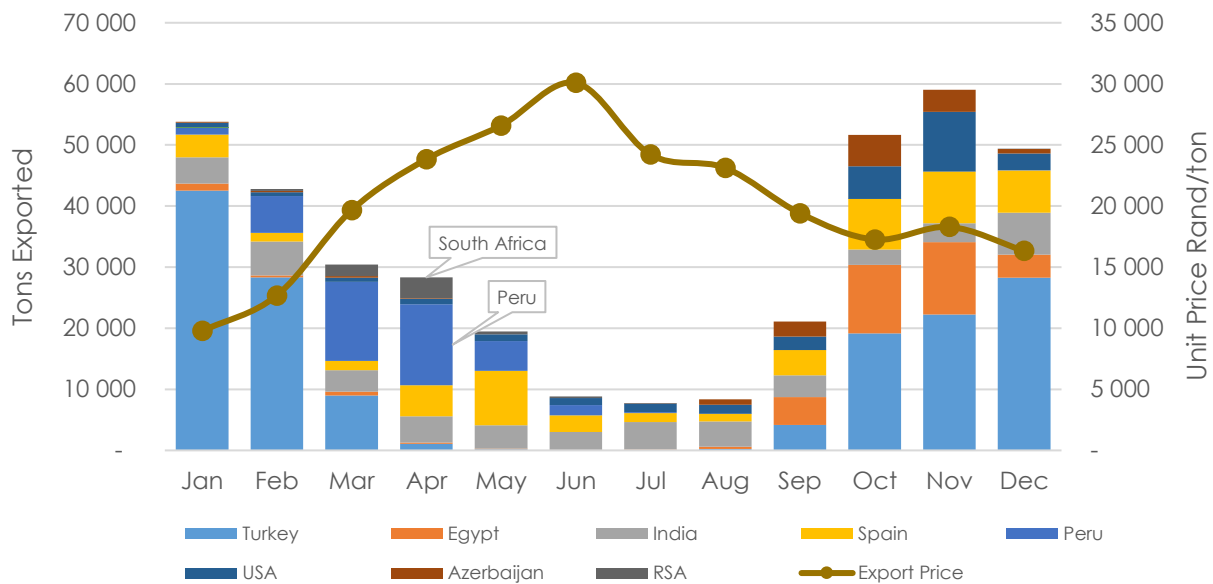


Figure 3: Pomegranate export per month and price, 2019

Source: Own compilation from various including ITC, 2020

The growth in exports and area planted globally has been driven by increased global demand for pomegranates. Various media outlets have classified pomegranates as a “super fruit” owing to the many health benefits of the product, including high levels of punicic acids, vitamin C and antioxidants. Many consumers are moving towards healthier dietary food intake such as pomegranates, since it has a proven impact on cardiovascular health, anti-inflammatory properties and is inescapably linked with improved fertility (Danesi & Ferguson, 2017; Kojadinovic et al., 2017; Türk et al., 2008).

There has also been strong growth in the food industry and the use of pomegranates in food services, becoming an important ingredient for fruit juices, flavoured water, jams and in desserts (CBI, 2020). In recent years European consumers have also shown an increasing preference for fruit consumption with improved convenience such as those that are easy to prepare and ready to eat. Supermarkets are offering the arils of the pomegranate packaged either as fresh or as frozen products (CBI, 2020). Furthermore, there is essentially no part of the pomegranate plant without economic value, with phytochemicals and bioactive compounds found in the bark, leave and seeds, alkaloids in the bark and leaves

and some organic acids flavonols, anthocyanin and anthocyanidins in the leaves, rind, fruit, bark and juice (Lewu et al., 2019). Pharmaceutical and cosmetic industries use pomegranate products in various therapeutic formulations and improving skin health.

One measure to analyse demand growth for pomegranates is to assess import trends. Figure 4 shows how, both in value and volume terms, pomegranate imports have increased since 2012. Imports in value have grown faster than volumes imported which indicate that prices have increased during this period. Average import prices have increased from R13 466 per ton in 2012 to R18 390 in 2019; this is equivalent to an annual increase of around 5% in nominal terms over this 7-year period (ITC, 2020). This price increases combined with exported volumes growing from 467 thousand tons to 874 thousand tons in this period has resulted in the value of exports reaching R16 billion in 2019.

The Figure 4 also shows the major importing countries according to the number of tons each imported in 2019. Iraq was the world's largest pomegranate importer with 91 611 tons, followed by Russia (86 723 tons) and the Netherlands (74 754 tons). The latter facilitate large volumes of pomegranates being re-exported throughout Europe by entering the Netherlands (Rotterdam). Germany (Hamburg) is another major route for pomegranates imported to the wider European Union (EU) market. Saudi Arabia, the United Arab Emirates (UAE), Pakistan and Bangladesh were other important importing countries. Whereas there is only a handful of major countries exporting pomegranates, significant volumes are imported by around 58 countries.

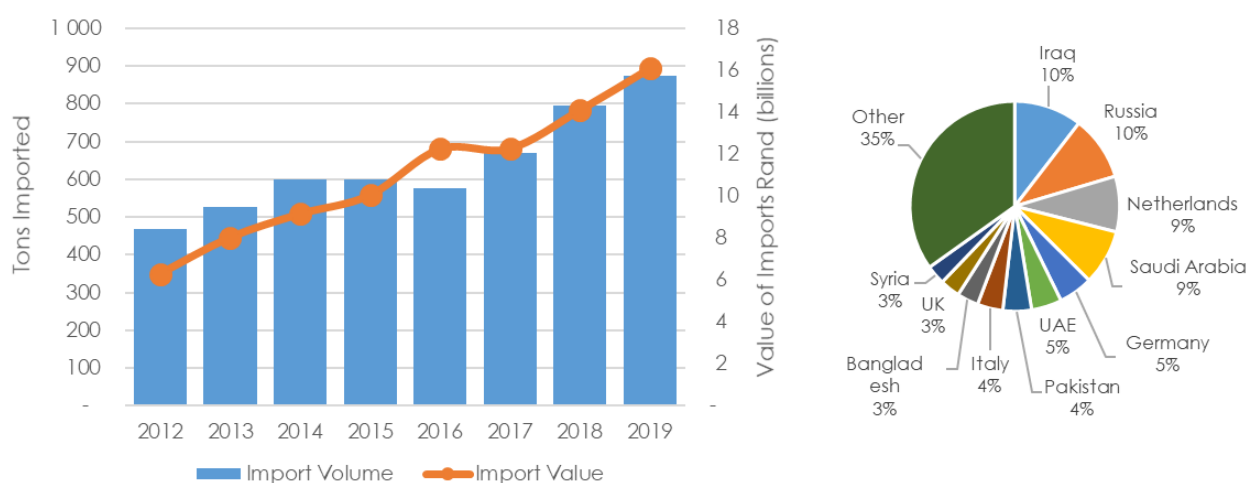


Figure 4: World pomegranate imports (left) and major importers in 2019

Source: ITC, 2020

The growth in imports over the past decade suggests that there is still opportunity to grow exports to meet the rising demand. It is also highly likely that due to the recent global

pandemic an even stronger drive toward healthy diets could create further demand for pomegranates in the short to medium term. The next section will provide an overview of the South Africa pomegranate industry, specifying the current structure and identifying recent trends.

3. SOUTH AFRICAN POMEGRANATE INDUSTRY

3.1 Industry Overview

The South African pomegranate industry is a relative newcomer to the commercial production of deciduous fruit in the country. Apples, pears, peaches, figs and prunes have already been in commercial production since at least 1918, when the first census of agriculture was undertaken in South Africa (Office of Census and Statistics, 1918). In contrast commercial pomegranate plantings only really started in the early 2000's when a few plants were brought in from Israel and planted in the Western Cape. Initial problems associated with disease-infected imported plant material stunted early growth of the industry, but by 2005 production volumes started to grow steadily (SouthAfrica.co.za, 2019).

The industry body, Pomegranate Association of South Africa (POMASA) was established in 2009 with the overarching purpose of addressing industry specific matters with common benefits to its members. POMASA therefore acts as a mouthpiece for pomegranate producers, processors, marketing agents, nurseries. The association provides statistics, research and development and represents the industry on market access forums. It is worth mentioning that South Africa's pomegranate industry is a world leader in terms of generating reliable and detailed statistics and has enabled various research projects support growth in the industry (POMASA, 2013-2020, Ampem, 2017; Kawhena, 2019; Experico, 2019; Lewu et al., 2019)

Technical details about production of pomegranates as it relates to climate, soils, cultivars, and production considerations have already been published and falls outside the scope of this report (POMASA, 2013). In what follows, the economic contribution of the pomegranate industry is given as it relates to production, employment, exports and value chain linkages to other sectors of the economy.

3.2 Production

Commercial production of pomegranates in South Africa reached an estimated³ 14 835 tons in 2019, produced on just over 1 000 hectares. As indicated in Figure 5, there has been significant increases in the area planted, growing from around 70 hectares in 2007 to its current area of 1 032 hectares. It is expected that as many of the existing orchards reach full-bearing age soon, the production totals are expected to increase by around 7% per annum towards 2025. The latest statistics suggest an average and industry-wide yield of 15 tons per hectare has been achieved in 2019. Pomegranate growers do however report much higher yields, especially as trees reach full-bearing age at around 5 to 7 years and depending on variety, can reach yield levels of up to 35-40 tons per hectare.

The different mix of varieties planted is also shown in Figure 5 indicating that around 76% of all hectares were planted under the variety called Wonderful, followed by Acco and Hershkovitz with 9% each. Production is concentrated in the Western Cape with 72% of the area planted, Limpopo was the second largest province with 19% of the total. The latter has seen the largest expansion in recent years.

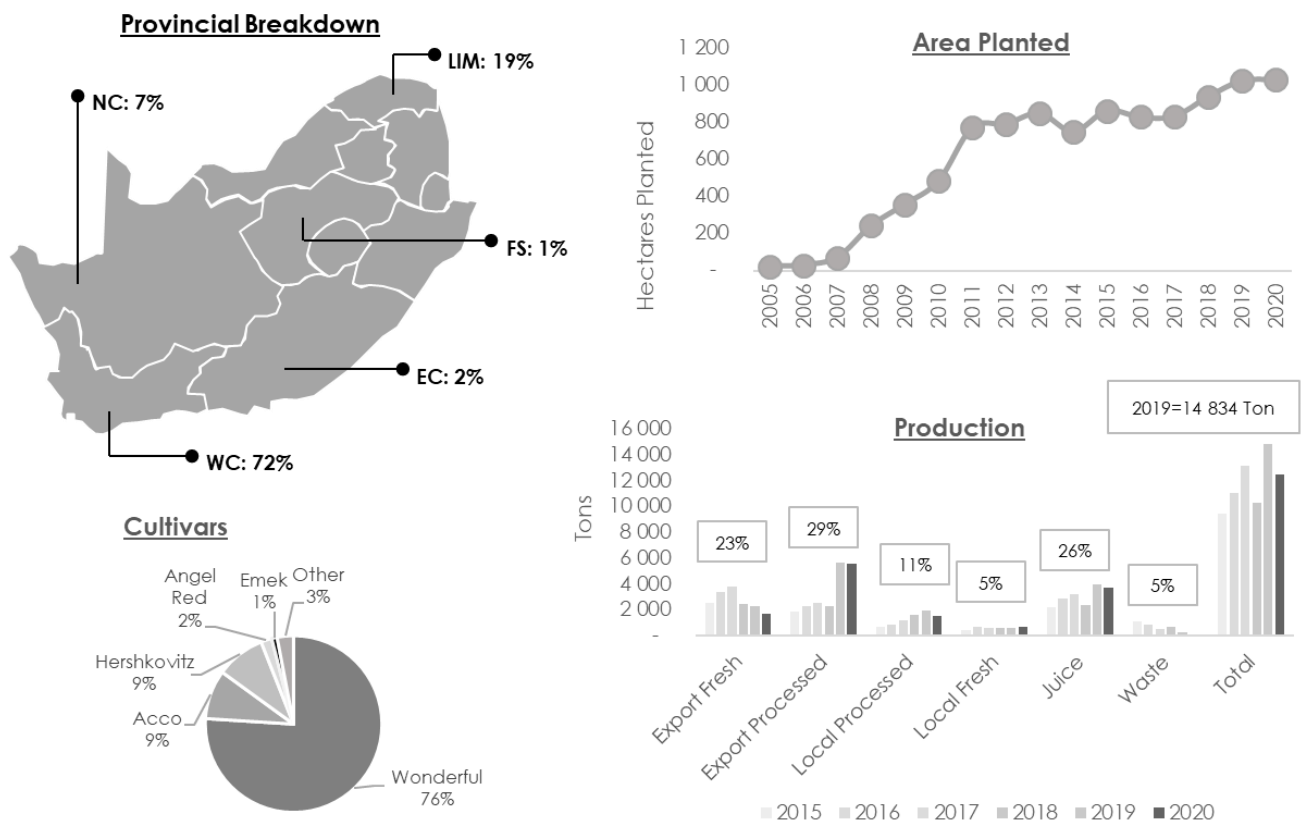


Figure 5: South African pomegranate production

Source: POMASA, 2020

³ Information on export volumes measured using POMASA pack house surveys, but the total tons produced was estimated using information from significant buyers in South Africa, from retailers to processing businesses, as well as the producer surveys.

In terms of the different market segments, South African pomegranates are mainly exported. Combining the 23% of the harvest that are exported as fresh fruit and the 29% exported for further processing gives a combined share of 51% of total output which is exported. The local fresh market is relatively small and absorbed around 5% of the total and a further 11% is used for local value-added processing. The value adding activities includes the process of aril extraction and the use of the fruit in the baking and food products industries. Finally, a fairly large proportion of 26% of pomegranates are used for juice making. Using these numbers, it is estimated that the South African pomegranate production grew from around 9 461 tons in 2015 to around 14 835 tons in 2019.

As part of the research undertaken to assist the analysis in this report, semi structured interviews were conducted with four prominent pomegranate producers in South Africa. Their orchards represent around 200 hectares of production which represents around 20% of the total area planted. Thus, the analysis that is presented here can be considered a good average or typical pomegranate enterprise and is summarised on a per hectare basis. This provides the reader, prospective investors or existing growers the opportunity to plan, benchmark and assist in decision-making, knowing that economic returns are subject to a host of factors. The economic performance of any agricultural enterprise is dependent on the prevailing climate and weather conditions, variations in bio-physical potential, the managerial abilities of the operator and resource efficiency to name a few. There is also a host of exogenous factors that influence on-farm returns such as movements in the currency, interest rate changes, trade policy and changes in world demand and supply.

The analysis is based on the 2019 season, reflecting average actual costing and income from the enumerated pomegranate growers. These figures can also be closely compared to existing farm-level information published by POMASA (2020) to gain insights into the dynamics of farm income and costs. The typical farm analysis is based on a pomegranate orchard of one hectare with 660 trees planted and is done over a ten-year period. The yield curve is weighted to reflect an orchard with a variety distribution that matches the current variety structure of the industry; 75% Wonderful, 14% Hershkovitz and 11% Acco. The baseline income and expenditure numbers do not include inflation adjustments, and overhead costs are assumed as 10% of total expenditure.

The establishment costs do not include any additional capital investment for establishment such as ridging, drainage and fumigation, but includes other land preparations, plant material, irrigation and trellising. Figure 6 summarises the income, expenditure and

expected yields from establishment up to year 10. Establishment costs in year 1 were valued at R144 000 which, if combined with the operational expenditure, result in a R178 000 investment in the first year. The yield curve starts in year 2 with a very small harvest of 2 tons, but in many cases could still be zero. The trees are expected to reach full bearing at year 5 to 6. The average yield from year 5 to year 10 is 28 tons per hectare, but yields vary considerably between varieties, climate and management.

At full bearing age from year 5 onwards, the operational expenditure averaged R247 000 per hectare. The income stream and pricing are dependent on the market segments, which in this typical pomegranate enterprise consisted of 24% fresh fruit exports and another 31% as processed exports. Additionally, 6% of the orchards' output entered the local market as fresh sales, whilst 12% went to local processing. Lastly, 28% of the harvest was sold to the local juicing facility for juicing. The average farmgate price of R10 946 per ton translates into an average gross income of R306 000 from year 5 to 10 and the expected Net Farm Income (NFI) was R58 818 per hectare in 2019. However, in year 10, when the highest yield of 31 tons per hectare was obtained the NFI reached R79 000. The results from POMASA (2019) have similar findings, but the NFI was specified for each cultivar. The variety Wonderful returned a NFI of R143 000, whilst Acco and Herschkowitz were R32 000 and R35 000, respectively.

For this typical pomegranate orchard done in this analysis, if the prevailing market conditions experienced in 2019 persist, the cumulative cash flow turns positive at around nine years after establishment.

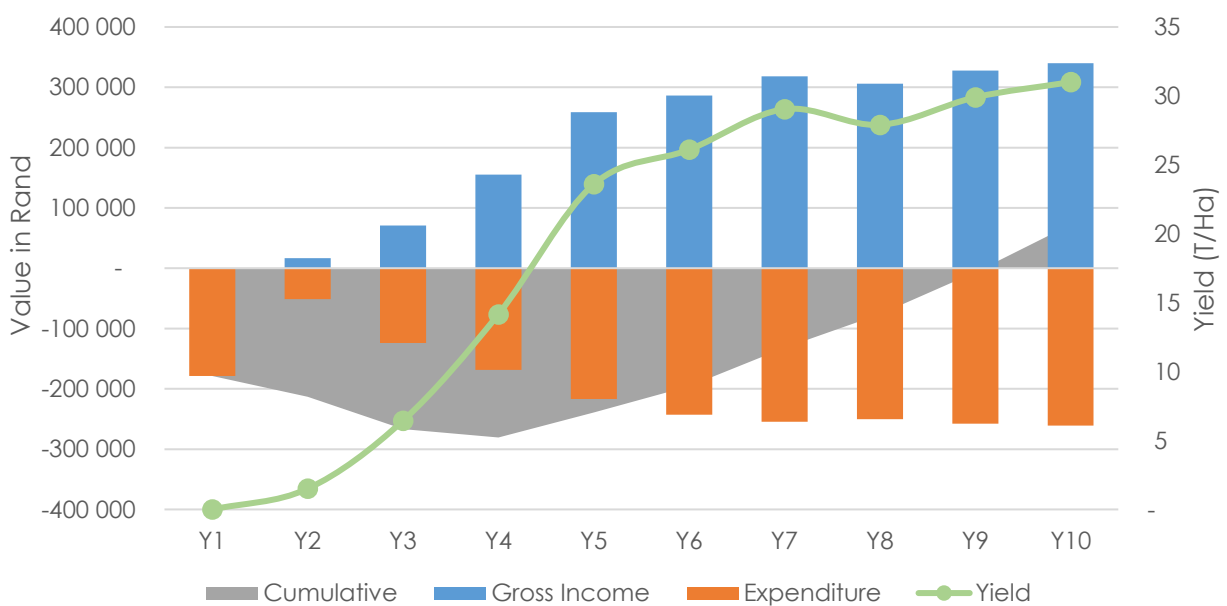


Figure 6: Gross margin analysis for a hectare of pomegranate production

Source: Own compilation

Inevitably the expected economic returns will vary depending on yields and market prices and the sensitivity analysis in Table 3 below shows how the NFI per hectare changes. When market prices are 10% higher than the price used in the analysis, coupled with a higher yield of 36 tons per hectare, the economic returns jump significantly higher to R173 983. Potential reasons for such a scenario could be the correct variety, planted in favourable climate and soils, and higher prices available due to a larger share going into class 1 exports. However, the opposite situation is also possible when prices decrease with the same proportion and yields are lower than expected. In the case where yields are 24 tons per hectare and prices drops to R9.9/kg, the gross margin turns negative to –R23 698 per hectare. Under the prevailing market conditions when this research was conducted, the breakeven yield in 2019 was 23 tons per hectare but will vary from farm to farm.

Table 3: Sensitivity analysis of gross margins

Yield (Tons/ha)	Price (R/Kg)				
	Less 10%	Less 5%	Actual	Add 5%	Add 10%
	R9.9	R10.4	R11.0	R 11.5	R12.1
24	-R23 698	-R11 199	R1 958	R15 115	R28 929
26	-R3 908	R9 633	R23 886	R38 139	R53 105
28	R15 882	R30 464	R45 814	R61 164	R77 281
30	R35 672	R51 296	R67 742	R98 077	R115 345
32	R55 462	R72 128	R103 559	R121 101	R139 521
34	R75 252	R92 959	R125 487	R144 126	R163 696
36	R95 042	R113 791	R133 526	R153 261	R173 983
Breakeven Yield	25	24	23	21	20

Source: Own compilation

Figure 7 below shows the breakdown of both the income and cost streams at full-bearing age. As expected, due to its significant price premium, fresh exports made up 53% of income, followed by processed exports (29%) and local market sales (16%). Although a relatively large proportion of the total harvest volume (28%) is used for juice manufacturing, the proportion to overall income was only 2%. The basket of expenditure items shows that 44% are spent on packaging, reflecting the importance of postharvest processes and logistics. Labour costs were the second largest expenditure item with R61 790 per hectare and spending on chemicals and fertilisers made up 9% and 4% respectively.

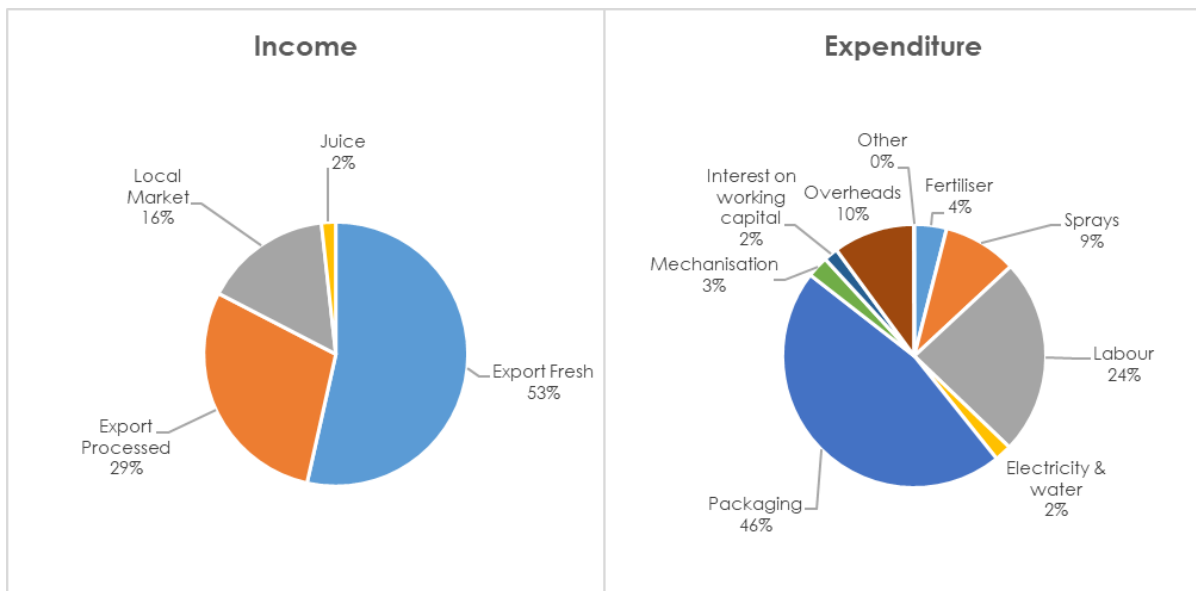


Figure 7: Income and Expenditure breakdown for a full-bearing hectare

Source: Own compilation

3.3 Employment

The agricultural sector, and especially intensive horticultural industries, is often mentioned for its high employment intensity which has the ability to create jobs in South African. Indeed, it is not only the relative labour intensity, but also the type of labour that agriculture normally utilises. In broad terms, South Africa is in the unfortunate situation where there is excess demand for skilled labour, but a shortage of skilled workers and on the other side a large pool of unskilled, unemployed workers unable to find employment (Bhorat & Hodge, 1999; Rodrik, 2006; Banerjee et al., 2008; Dias & Posel, 2007). This has contributed to the ever-increasing unemployment rate seen over the past decade. The latest statistics suggest that the unemployment rate is currently at 28.7% using the narrow definition and 36.3% if one includes the discouraged workforce (those that have stopped looking for employment) (QLFS, 2020).

As part of the analysis undertaken in this research effort, the employment impact of the pomegranate industry was calculated. Since no official statistics capture employment numbers on specific agricultural industries, the best means to estimate job creation is to relate the employment requirements per hectare of production. Figure 8 shows the employment created as a result of pomegranate production in South Africa, differentiated between seasonal, permanent, pack house and management. These jobs are presented as fulltime equivalent jobs, meaning that seasonal jobs are converted to fulltime jobs based on the labour spread over a year. Thus, although a seasonal picker is employed for example

three weeks, the fulltime equivalent would be equal to 0.0625 fulltime equivalents (using 240 working days per annum).

The analysis shows that for every hectare of pomegranates under production, this industry creates employment for 1.7 workers on a fulltime allocation. Using the known information on the growth of the industry in terms of the hectares planted, the labour multipliers suggest that between 2005 and 2020, the pomegranate industry has created around 1 700 new fulltime jobs. In the past year, the industry utilised seasonal picker's equivalent to 857 fulltime farmworkers, whilst 459 were employed in pack houses and another 406 as permanent workers. Around 41 labourers are employed in management and supervision occupations on pomegranate farms. This utilisation of labour translates into the industry paying wages valued at R61.4 million in 2020. The industry also creates jobs in the downstream sectors of the economy since exporters and agro processing facilities also utilised labour in their respective economic activities. Thus, the economic contribution brought about by the expansion of pomegranate production has made a significant impact on improved livelihoods with increased labour absorption. Continued growth in employment is expected as the industry continues to grow.

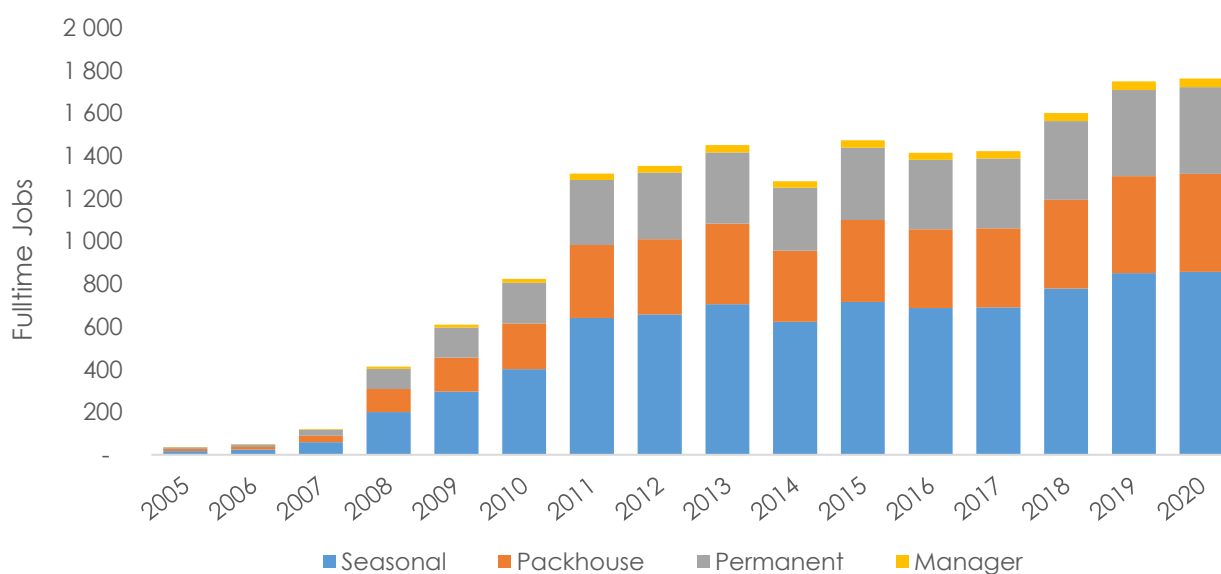


Figure 8: Fulltime employment estimates for pomegranates, 2005-2020

Source: Own compilation

3.4 Exports

As pointed out in the previous section an important market segment for South African pomegranates is exports. Analysing South Africa's pomegranate exports is challenging due

to data inconsistency and classifications. Since pomegranates do not have an exclusive HS-code, it is difficult to determine the exact value of exports, whilst the available data on the volumes exported shows different values. In an attempt to still provide insights into the contribution of the industry in terms of its export performance, all the different sources are given to show where possible discrepancies exist.

Figure 9 shows the exported tons from various sources. The Perishable Products Export Control Board (PPECB) and the information gathered from enumerating major pack houses shows a consistent upward trend. From 2012 South African pomegranate export volumes increased from 1 878 tons to 6 140 in 2020 (PPECB, 2021). The available data from pack houses were from 2015 of which the 5 642 tons exported were every close to the PPECB number of 5 092 tons exported, but the since 2018 there has been a widening gap between these two sources. The former has total export volumes higher at 7 344 tons in 2020.

Trade information from the South Africa Revenue Service (2021) captures the value and volume of goods traded before the product leaves South Africa's border. Unfortunately, pomegranates are classified under the HS code: 08109090, with other fresh fruit not classified elsewhere. Since fresh pomegranates are almost exclusively exported between February and June, the SARS data is used for those months to get a good proxy of the majority of pomegranates exported by South Africa. The volumes from this analysis suggest that it is closely matched with information from the two existing sources.

Using this method, South African pomegranate exports have seen strong growth over the past few years, reaching R124 million in 2020. The sudden decline observed in 2018 is mainly attributed to the devastating drought experienced in the Western Cape. Like many other fruit industries, a strong recovery was made in 2020 due to the overall dam levels improving considerably as a result of strong winter rains. Between 2012 and 2020, the value of pomegranate exports has increased by 18% per annum. Thus, compared to the world exports, the South African pomegranate exports have outperformed global export growth, which was 11% over the same period (ITC, 2021).

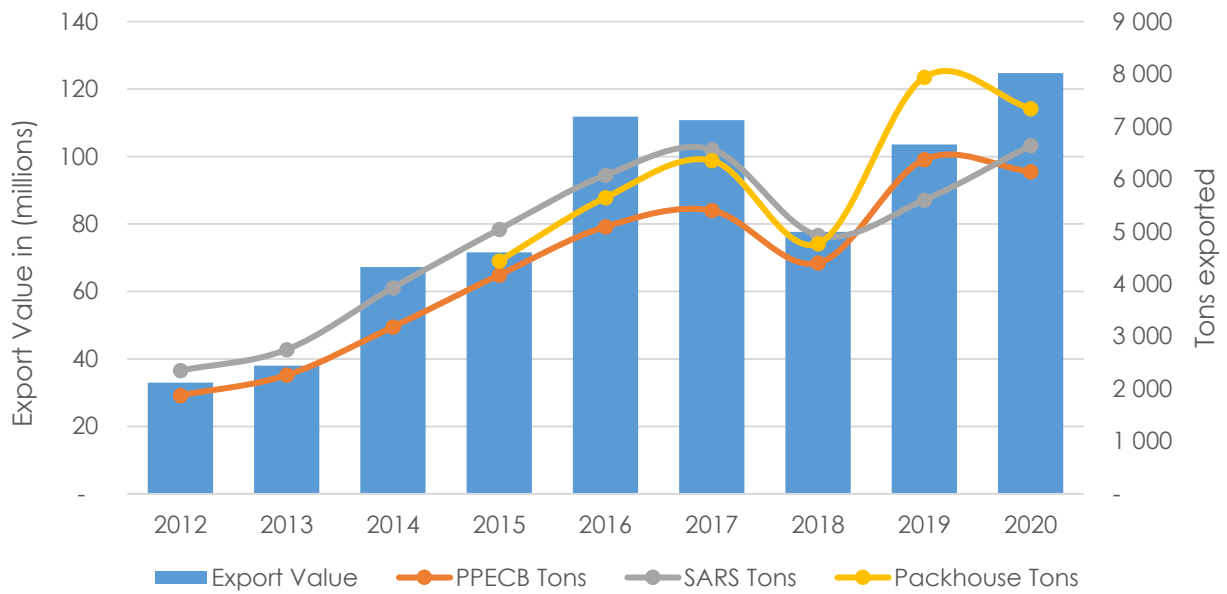


Figure 9: South African pomegranate exports by value and volume

Source: Own compilation from SARS, 2021; PPECB, 2020, POMASA, 2020

The major destination markets for South African pomegranate exports are given in Figure 10 below, according to the volumes traded (PPECB, 2021). Moving from left to right the changes in the leading trading partners are given in percentage terms for each year. Traditionally, the Netherlands and the United Kingdom have been the leading importers of South African pomegranates with around 68% of the total entering these two markets in 2015. Since then, these two markets have seen their share decline as other importing markets grew faster. There has been strong growth in Middle Eastern markets, with the United Arab Emirates and Iraq gaining market share to the extent that, in 2020, Iraq and the UAE were the leading importers with a 50% share of exports.

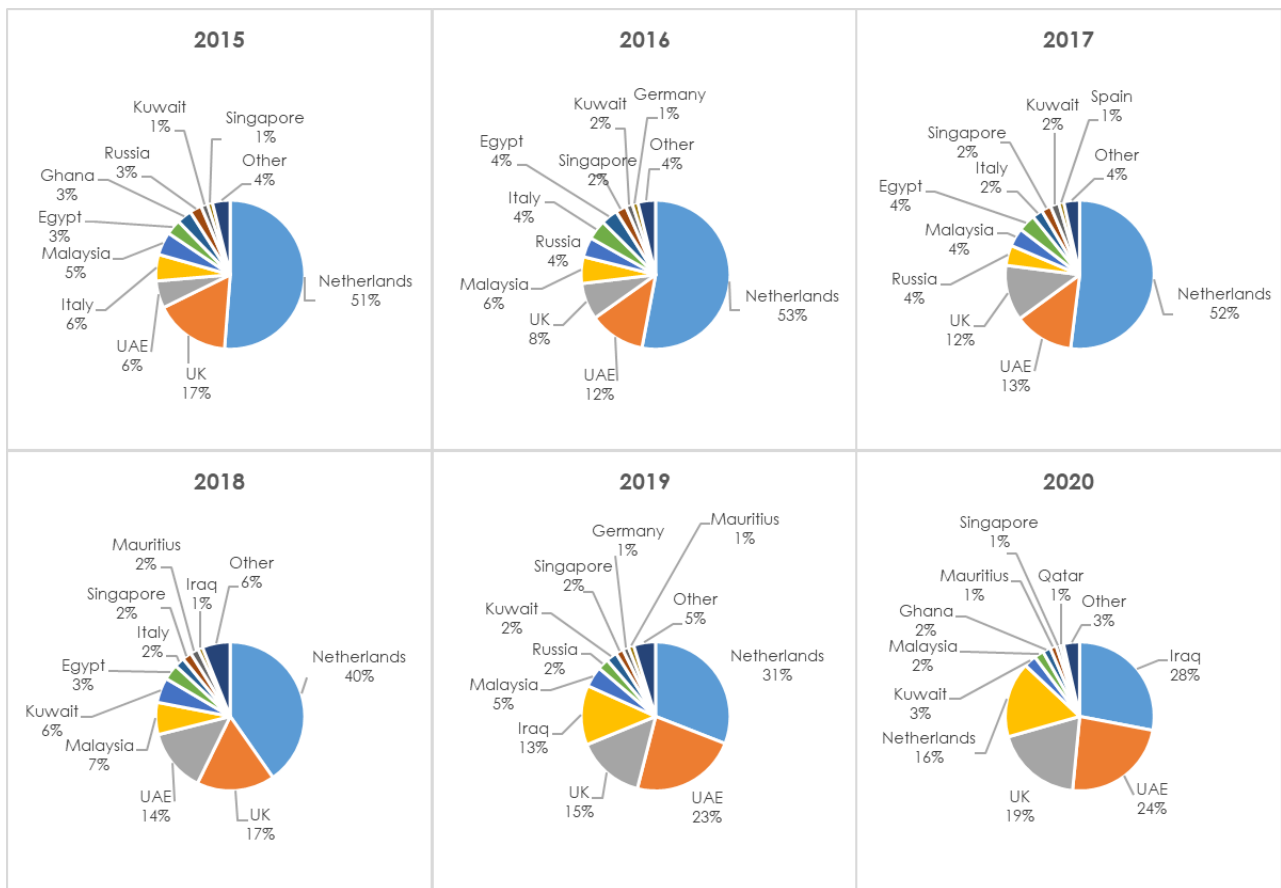


Figure 10: South African pomegranate major destinations

Source: PPECB, 2021

3.5 Market Access

Market access is one of the major priorities of many fruit industries in South Africa. Looking at the prevailing tariff levels currently faced by South Africa, compared to other major pomegranate exporters. Tariffs are generally administered under the extended General Agreement on Tariffs and Trade (GATT), as signed under the 1994 Marakesh agreement by the World Trade Organisation agreement (WTO, 2015). Member states under GATT have all agreed to Article 1 which stipulates the Most Favoured Nation (MFN) tariff principle whereby if a country has no preferential trade agreements, that country will face the MFN tariff. Table 4 provides the MFN tariffs for importing countries and specifies the current tariff.

The EU is by far the biggest importer of pomegranates with a total market size of R7 billion and a standardised tariff structure. The MFN tariff is set at 8.8%, but South Africa has a longstanding preferential tariff arrangement under the Trade Development and Cooperation Agreement (TDCA) under which pomegranates have free access to all EU markets. Other major suppliers into the EU market with zero tariffs includes Turkey, Egypt, Spain and Peru. In contrast, India, the USA and Azerbaijan all face tariffs in excess of 5.3% (ITC, 2020). Thus, South Africa and its major Southern hemisphere competitor both have free

access to the EU market. Thus, the country should look elsewhere to extend market access conditions. Russia's R1.6 billion import market has more widespread tariffs applied to pomegranates of 3.7% which is slightly lower the MNF tariff of 5%. Apart from Azerbaijan which has a zero-tariff applied, the rest of the major exporters, including South Africa, face a 3.7% tariff. The Saudi Arabia and the UAE markets do not have any tariffs on pomegranates whatsoever, whilst the UK market, who recently left the EU, have tariff schedules slightly lower than the rest of the EU. India faces a 4.5% tariff, whilst the USA and Azerbaijan face a tariff of 6.3%. The final two import markets, Pakistan and Bangladesh, have large tariffs and are relatively broadly applied. The MFN and applied tariff are the same for all markets, except for India which has a tariff advantage exporting to Pakistan. If bilateral engagement could lower tariffs in these markets it could present opportunities for South Africa, since tariffs between 20-25% makes these markets uncompetitive to the industry.

Table 4: Tariff analysis for major exporters of pomegranate in major markets

Exporter	Average Tariffs imposed by Importer (%)						
	EU	Russia	Saudi Arabia	UK	UAE	Pakistan	Bangladesh
Size of Market	R7 billion	R1.6 billion	R729 million	R704 million	R584 million	R343 million	R257 million
Turkey	0	3.75	0	0	0	20	25
Egypt	0	3.75	0	0	0	20	25
India	5.3	3.75	0	4.5	0	12.5	25
Spain	0	3.75	0	0	0	20	25
Peru	0	3.75	0	0	0	20	25
USA	6.3	3.75	0	6.3	0	20	25
Azerbaijan	6.3	0	0	6.3	0	20	25
RSA	0	3.75	0	0	0	20	25
MFN Tariff	8.8	5	0	8	0	20	25

Source: ITC, 2020

Part of the discussion on market access also involves the competitiveness of South Africa's pomegranate exports. One measure to assess the industry's performance is by measuring the Relative Trade Advantage (RTA) and the growth in the world market share. Figure 11 shows these changes from 2012 to 2019. The RTA is a measure of competitiveness where a positive value suggests that the share of South Africa's pomegranate exports to total South African exports is larger than the same share calculated of imports. Thus, competitive products have positive RTA values (+), the marginally competitive have values close to zero (0) and uncompetitive have negative RTA values (-) (Kleynhans et al., 2016).

For pomegranates, the share of the industry's exports as a percentage of world exports are closely related to the RTA trend since pomegranate imports are very low for the country. South Africa has a large and positive RTA value that has increased since 2012, albeit with some declining years. The drop in 2018 can be attributed to the impact of the drought in the Western Cape with production volumes declining and evidently also the export values. There has however been a recovery in 2019 and 2020. South Africa had world market share of 10.5% in 2019 and like the RTA trend has been increasing overall since 2012. These two metrics suggest that the industry is performing well in export markets and is growing its competitiveness over time.

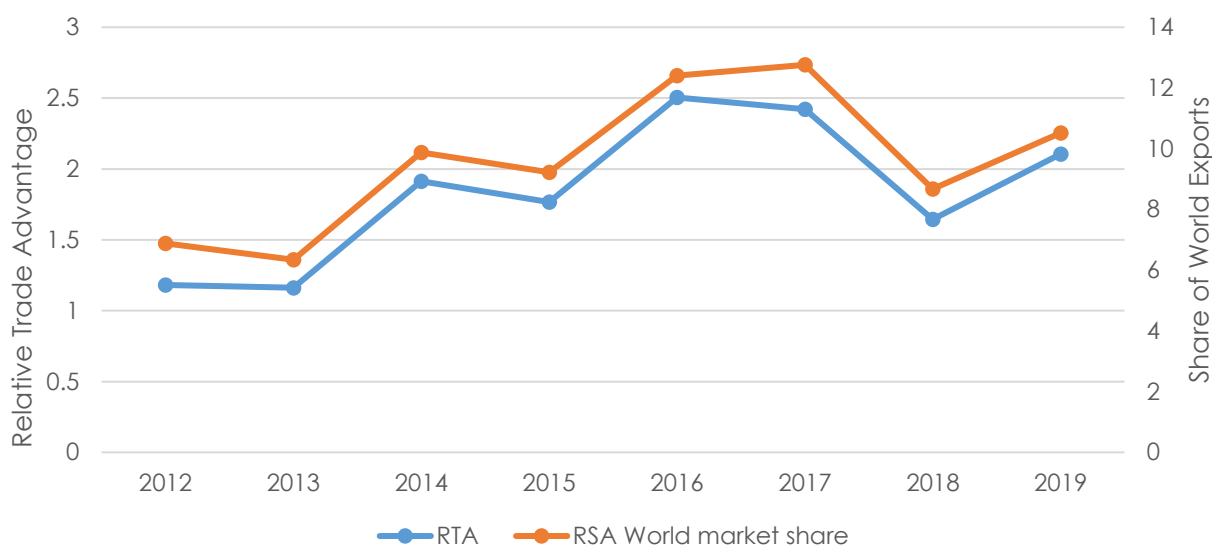


Figure 11: Competitiveness of South African pomegranate exports

Source: ITC, 2020

3.6 Value Chain Linkages

In the final step to assess the importance of the pomegranate industry to the economy, its value creation throughout the value chain is estimated for 2019. The schematic diagram in Figure 12 is based on both the producers' surveys undertaken, pack house and industry information, as well as discussions with a selected number of exporters, retailers and processing businesses. The estimates of the various market segments are not exhaustive since information on the use of pomegranates in the food industry and cosmetic use is not available. This, however, is a very small market in South Africa but growing globally.

Starting from the left, inputs used in the production of pomegranates are summarised from the highest expenditure, to the lowest. In total, the industry spent around R137.5 million. This is income to upstream sectors of the economy and translates into creating around 100

additional jobs. The primary farming of pomegranates has been discussed in the previous section, but the total farm income generated by sale of the fruit is valued at R146 million.

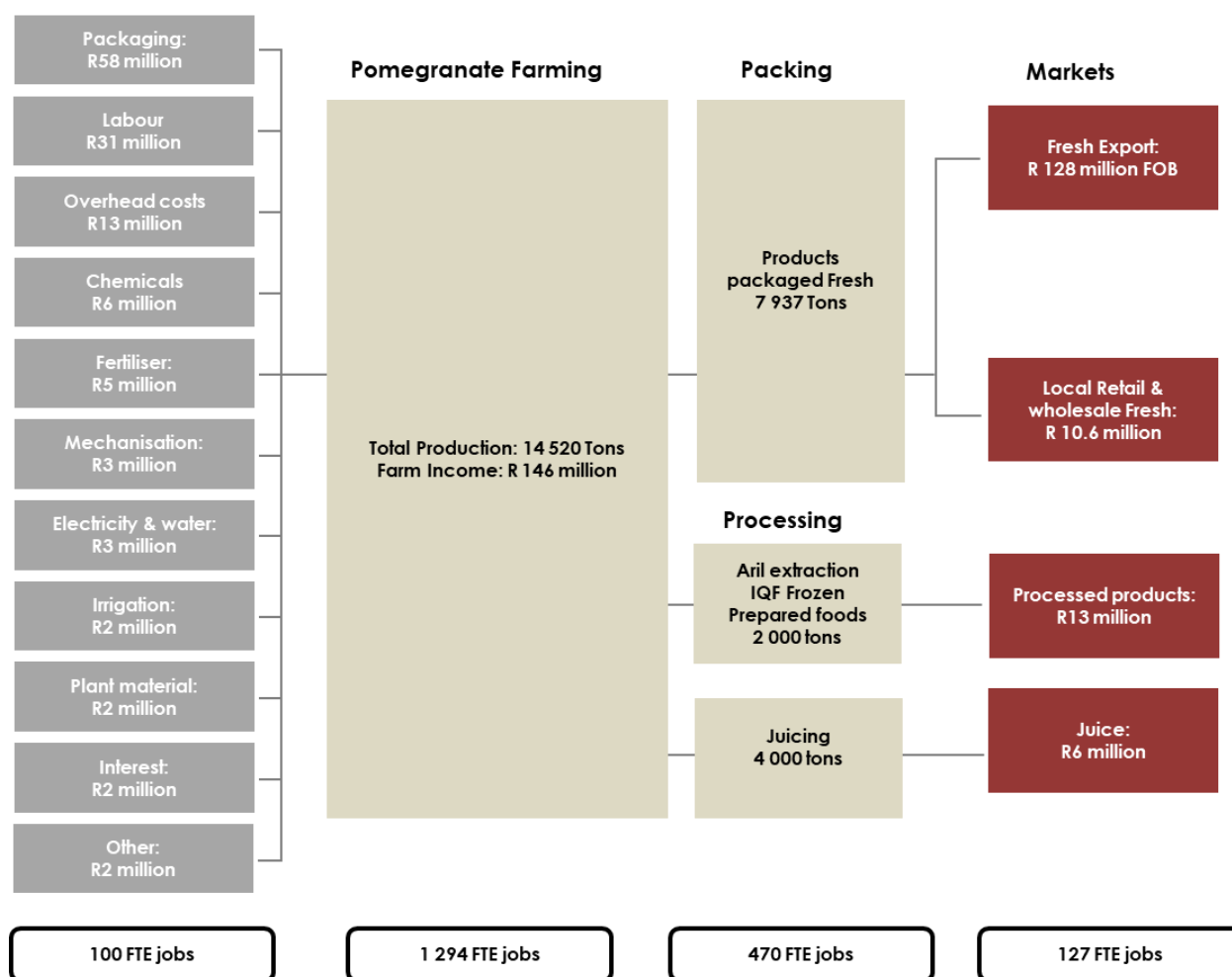


Figure 12: Pomegranate value chain in South Africa, 2019

Source: ITC, 2020

Around 8 000 tons are exported with value-adding taking place in packing and cooling facilities. In terms of the processing, around 2 000 are either used for aril extraction, Individually Quick Frozen (IQF) or used in the food industry, whilst another 4 000 tons are used in juice manufacturing. Combined, these value-adding activities required around 470 jobs. Finally, at the market end of the value chain, fresh exports (including fresh aril exports) were estimated at R128 million and local fresh sales in wholesale and retail trade around R10.6 million. The processed product market sales were R13 million and juice products around R6 million. The economic activities taking place to sell pomegranates and derived products in consumer markets results in a further 127 jobs created.

In summary, the entire pomegranate value chain activities economic footprint is valued at a gross income of R157 million and in the process employs close to 2 000 fulltime workers.

4. CONCLUSION

The main objective of this research, undertaken in collaboration with POMASA, was to provide market insights on the pomegranate industry to the benefit of informed decision making. The global overview has given a detailed assessment of the growth in the global supply of pomegranates, mainly as a result of the strong demand growth in recent years. The analysis on the economic contribution of the South African pomegranate industry emphasised what is already known; this is an export-focussed, fast-growing and labour-intensive industry making a significant impact on economic development in rural areas. Since 2005, the industry has created around 2 000 job opportunities across the value chain and the boast with strong export performance which have grown with 18% since 2012. South African pomegranate exporters have therefore outperformed global exports, something that was also evident in the improved relative trade advantage of the industry. The tariff analysis showed that South Africa has more or less equal tariff margins compared to other Southern hemisphere competitors, although large tariffs in growing markets such as Pakistan and Bangladesh hinder export growth. Regardless, there has been strong growth in South African exports to new markets to the extent that Iraq and the UAE are now the largest trading partners.

Continued improvements in post-harvest efficiency and yield growth on farm could drive further economic growth and create more jobs. There are also opportunities for the industry to invest in value adding to manufacture cosmetic and pharmaceutical products as an additional stream of income.

DISCLAIMER:

This document and its contents have been compiled by the Western Cape Department of Agriculture (WCDoA) and the Pomegranate Association of South Africa (POMASA) for the purpose of estimating the contribution of the pomegranate industry to the South African economy. The views expressed in this document are that of the WCDoA and POMASA, anyone who uses this information does so at his/her own risk. The WCDoA, POMSA and the author(s) therefore, accept no liability for losses incurred resulting from the use of this information.

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