

An Overview of the South African Sugarcane Industry



Introduction

The warm Mozambique current flowing along the eastern shore of South Africa allows sugarcane to be grown in KwaZulu-Natal coastal areas at latitudes further south from the equator than anywhere else in the world. Sugarcane is also grown in the hinterland at altitudes of over 500 meters, as well as in Mpumalanga, which is around 200 meters above sea level. The average annual rainfall for the industry is around 940 mm with the northern irrigated regions averaging only 715 mm, north and south coast around 1,000 mm and Zululand and Midlands averaging around 900 mm respectively. The terrain varies from relatively flat in the northern regions, to undulating in the hinterland, to very steep along the coastal regions.

The total area under sugarcane production in South Africa is around 430,000 hectares, with about 22% grown under irrigation, mainly in the northern regions. Total area under sugarcane and the area harvested annually is shown in Figure 1. There are currently some 47,000 registered sugarcane growers, of whom about 45,500 are designated as 'small-scale' and 'medium-scale' growers. The area under sugarcane for small-scale growers varies between 0.5 and 10.0 hectares per grower. The average commercial farm produces between 8,000 and 12,000 tons of sugarcane per annum.

As can be seen in Figure 2, the South African sugar industry produces an average of 22 million tons of sugarcane, 75% of which comes from some 2,000 commercial growers, 13% from small-scale growers and 12% from estates operated by six milling companies referred to as *miller-cum-planters*.

Sugarcane Production

A large proportion of the area under sugarcane production in South Africa is on undulating to steep topography. The large percentage of short rows and other physical impediments such as contours and waterways do not facilitate efficient mechanized harvesting operations. Furthermore, in many areas row spacings are less than 1.2 meters.

Sugarcane is harvested between six and eight times before it is re-established. Re-establishment is carried out using either mechanical or chemical methods. Seedbed preparation is effected by conventional ploughing/harrowing or by using specially designed minimum and reduced interrow tillage equipment. Creating furrows for planting is carried out mechanically, except on extremely steep slopes, where it is done manually. Although mechanical whole stalk sugarcane planting has been tried in the past, the planting and covering operations are currently still carried out manually.

Prior to the 1960s, weeds were

controlled using hand labor and a range of mechanical cultivators. Although some herbicides are applied mechanically via boom sprayers, most private growers use manually operated knapsack sprayers. Fertilizer in the furrow and as a top dressing practiced by much of the industry, is applied manually using the 'tin and string' method, or using a range of manually operated 'wheelbarrow' and knapsack applicators. Mechanical fertilizer application, using both banding and broadcasting equipment, is carried out on much of the flatter terrain in the industry.

In the northern irrigated region, the average age of sugarcane at harvest is about 12 months and average yields are around 100 t/ha-1, whereas the average age and yield for the coastal regions are around 14 months and 60-70 t/ha-1 respectively. The age and yield of cane at harvest in the high altitude Midlands regions of KwaZulu-Natal is around 20-24 months and 100 t/ha-1 respectively. The main cane varieties grown in the South African sugar industry include N12, N14, N19,

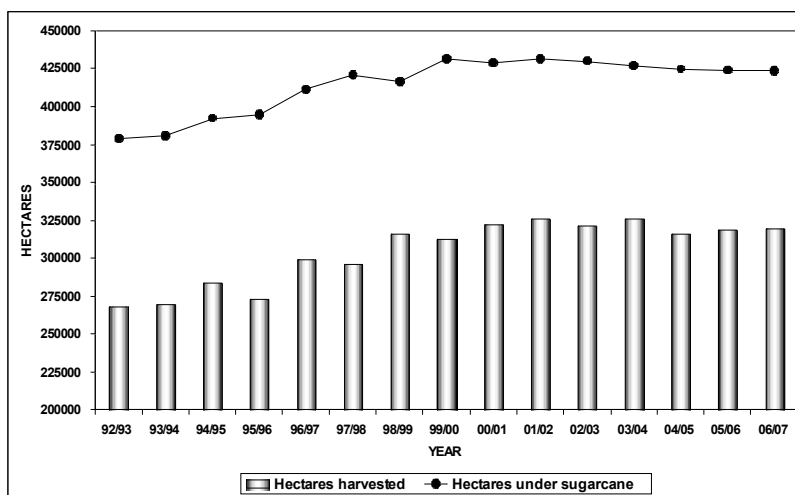


Figure 1. Total crop area: 1992/93 to 2006/07
Source: South African Sugar Association



N26, N27 and NCo376. All of these varieties were developed by the South African Sugarcane Research Institute (SASRI) located at Mount Edgecombe just north of Durban.

Harvesting, Transport and Milling

In the South African sugarcane industry, sugarcane is harvested between April and December. The average sugarcane crop cycle varies between 12 and 24 months, depending on the bioclimatic region in which it is grown. Manual harvesting has dominated the South African sugarcane industry since 1848. During the early years, indentured Indians formed the major workforce in the fields, later supplemented with Tonga's and Pondo's.

Currently only about 2% of the annual crop is harvested mechanically, mainly in the northern irrigated and flatter Midland areas. At present more than 90% of the sugarcane is burnt prior to harvesting. It is estimated that 40% of whole stalk sugarcane is either loaded manually onto transport vehicles or stacked in 3-5 ton bundles to be transported by self-loading tractor/trailer combinations. The remaining tonnage is mechanically loaded by grab and push-pile loaders onto a wide range of vehicles which transport the sugarcane either directly from the fields, or indirectly from transloading zones to the mill.

Due to the wide range of topographical conditions under which sugarcane is grown in South Africa, numerous modes of transport are used. A large proportion of the crop is transported from the fields to strategically located transloading zones on the farms. Mobile cranes or mechanical loaders are used to tranship the sugarcane onto 20-30 ton spiller road haulage vehicles, which transport the sugarcane to the mills. More than 1

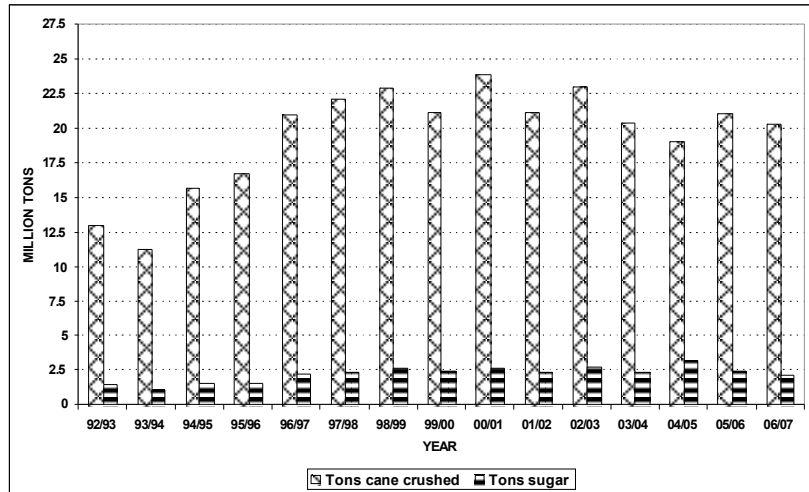


Figure 2. Crop data: 1992/93 to 2006/07
Source: South African Sugar Association

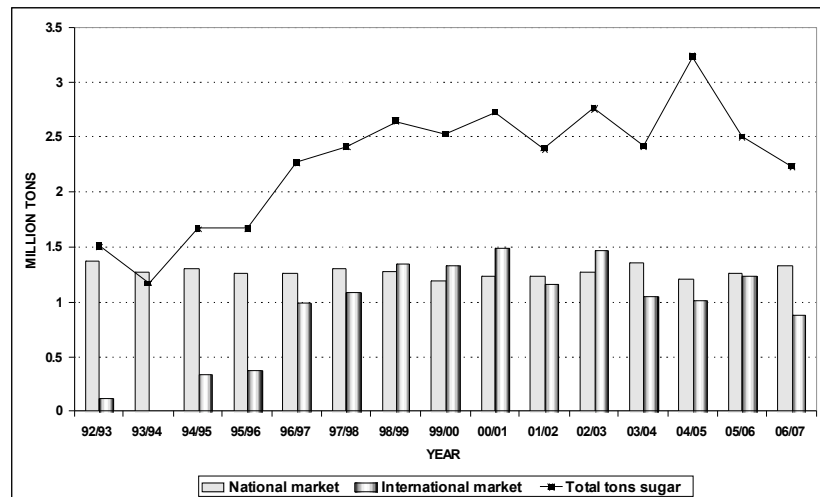


Figure 3. Sugar production and sales
Source: South African Sugar Association

1,200 road transport vehicles are used to transport the sugarcane, and it is estimated that the average one-way haulage distance is 25 kilometers.

Most of the narrow gauge rail system was phased out by the mid-1960s, because of a rapid rise in the cost of replacing rolling stock and tracks and extensive damage by floods to the rail network. Today, only the Umfolozi Mill is still being served by a narrow gauge tramline network. The largest mill, Felixton, still receives a small proportion of its sugarcane via a wide gauge rail system.

The South African sugarcane industry is served by a total of 14 mills, ranging in crushing capacity from 0.7 to 2.5 millions tons of sugarcane per season. Nearly all South African mills use a diffuser extraction method, and several mills operate both a diffuser and a milling tandem. Four of the mills operate a back-end refinery. The milling season ranges between 32 and 40 weeks, depending on yield and mill area location. The annual sugar tonnages produced for the local and international market are shown in Figure 3. Bulk raw sugar is exported

mainly through SASA's export facility located in Durban and through the terminal located in Maputo, Mozambique.

The sugar industry is one of the major economic contributors in the South African agricultural sector. As can be seen in Figure 3, the sugar industry produces an average of 2.5 million tons of sugar per season, and contributes an estimated average of more than R2 billion to the country's foreign exchange earnings on an annual basis. Direct employment within the sugar industry is approximately 85,000 jobs. Direct and indirect employment is estimated at 350,000 people.

The South African Sugar Association administers the partnership between the South African Cane Growers' Association and the South African Sugar Millers' Association Ltd. The South African sugar industry is serviced by two research institutes. The Sugar Milling

Research Institute (SMRI) serves the milling sector, and the South African Sugarcane Research Institute (SASRI) provides for the needs of the farming sector. The South African Sugar Association's Sugar Terminals, Shukela Training Centre and Cane Testing Services provide and operate the export facility, training of artisans, and cane testing and payment services, respectively.

The South African sugar industry focuses on being a high quality, profitable and sustainable sugar producer. The industry has been involved in transformation initiatives including land reform, education and training and the promotion of sound and sustainable environmental practices. In addition to the industry's initiatives, the South African Cane Growers' Association and the milling companies undertake development projects and are involved in Black Economic Empowerment through a range of important initiative. **SJ**



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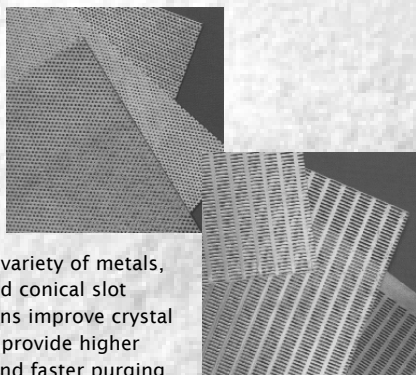
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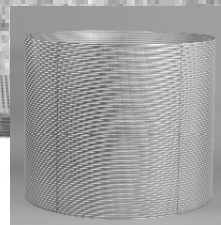
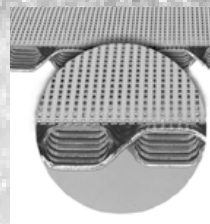
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