REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF WATER AFFAIRS AND FORESTRY
CHIEF DIRECTORATE FORESTRY

REPORT ON COMMERCIAL TIMBER RESOURCES AND PRIMARY ROUNDWOOD PROCESSING IN SOUTH AFRICA

2006/2007

Compiled on behalf of the
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by
Forestry Economics Services CC

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PREFACE

This Report contains information relating to the commercial timber resource and the primary roundwood processors in South Africa for the period July 2006 to June 2007.

The Department of Water Affairs and Forestry, Directorate: FTIS has commissioned a private sector enterprise to perform the task of gathering and reporting on this information, on its behalf. This is the seventh timber industry statistics Report presented under this arrangement.

The method of gathering the timber resource and roundwood processing information, which has remained unchanged, is to circulate forms to all identified plantation owners and timber processors for completion. The mailing list has been continuously updated over the past year and additional names added, when this information has become available. The questionnaire was redesigned to streamline it and try and make it more user friendly. This has contributed to the improvement and completeness of the information supplied. The result is that the number of responses on which the information in this Report is based has improved over time. This Report contains the information supplied from a total of 1 057 plantation returns (2005/2006: 1 115) and 162 roundwood timber processing returns (2005/2006: 163). The reason for the slight decrease in the number of returns received can be attributed to the fact that some of the growers have sold off some of their plantations or have restructured their plantations according to their new management structures. Returns were received from all the major plantation owners and all the major timber processors and, because the South African timber industry is characterised by the dominance of a very few large participants, the overall results of the survey are regarded as representative of the status of the South African timber industry for the reporting period of July 2006 to June 2007.

The information in this Report is only based on actual information received and have both been compiled using the same database, with the result that comparisons with previous years are now possible. An interpretation of some of the differences noted between the two latest Reports is discussed in a specific section of this Report. The reader should review the comments in that section and adjust their interpretation of the detailed information contained elsewhere accordingly.

Forestry Economics Services extends its sincere appreciation to all who made the basic information available and would like to thank the various industry representative organisations who kindly provided assistance.

Forestry Economics Services CC
May 2008

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STATISTICS IN BRIEF

Commercial Timber Resources

(2005/2006 figures are shown in brackets)

- The total commercial timber plantation area in 2006/2007 was 1 266 196 hectares (2005/2006: 1 281 519 ha).
- Private sector ownership accounts for 83% (76%) of the total plantation area.
- Softwood species cover 53% (54%) of the area and hardwood species cover 47% (46%).
- 55% (53%) of the plantation area is managed mainly for pulpwood production, 36% (38%) for sawlog purposes and 5% (6%) for mining timber with the remaining 3% (3%) for other purposes.
- During the 2006/2007 year 10 761 549 tons (12 046 402 tons) were sold as pulpwood, 5 373 608 m³ (5 778 023 m³) as sawlogs and 516 478 tons (634 592 tons) as mining timber.
- The conversion from forestry to other agricultural use was 8 297 hectares (958 ha) whilst new afforestation amounted to 2 197 hectares (2 635 ha)

Primary Roundwood Processing

(2005/2006 figures are shown in brackets)

- 178 (182) plants were in operation, of which 102 (104) were sawmills (including veneer and plywood plants), 38 (38) pole treating plants, 20 (22) pulp and board mills and chipping plants and 13 (13) mining timber mills.
- The total roundwood intake during the year was 19 809 460 m³ (23 042 960 m³).
- The delivered at mill cost of the total roundwood intake was R5 167 million (R5 267 million).
- The value of sales of timber products totalled R18 465 million (R15 679 million).
- An amount of some R15 781 million (R17 089 million) was invested in primary roundwood processing plants

GENERAL INTRODUCTION

SCOPE OF POSTAL SURVEYS

Commercial Timber Resources

The survey covers all known commercial timber plantations, irrespective of size, managed by private and public authorities in the Republic of South Africa. The figures reflected in this report are as supplied by the various plantation owners and processors.

Private Authorities

- Individuals and partnerships
- Companies and close corporations
- Association, educational or religious institutions

Public Authorities

- SAFCOL (South African Forestry Company Limited)
- Government Departments
- Local authorities

Primary Roundwood Processing

The survey covers all known timber processing plants engaged in the sawing, cutting, treating, peeling, slicing, chipping or other processing of roundwood as they are processed from living or dead trees or parts of trees. In the process of gathering plantation information in the previous reporting period certain purchases of timber were identified and have, where possible been included in the mailing list.

Forestry Economic Zones

The area covered by the surveys is demarcated into twelve forestry economic zones consistent with past practice. These zones are based on political (provincial), physical (climate, rainfall, soil). silvicultural (timber species), economic (communication systems) and historic (ingrained usages) considerations. It must be noted that the Northern Province as reflected in previous reports has been renamed to Limpopo Province in this report.

The demarcated zones and the magisterial districts within which plantations and primary roundwood processors were reported on are shown on the following page.

Zone 1 Limpopo Province

Dzanani	Sibasa
Gazankulu	Soutpansberg
Lebowa	Vuwani
Letaba	Warmbad
Mutale	Waterberg
Pietersburg	

Zone 2 Mpumalanga North

Barberton	Nelspruit
Lydenburg	Pilgrim's Rest
Mapulaneng	White River

Zone 3 Central Districts

Alberton	Lichtenburg
Belfast	Middelburg
Bloemfontein	Pretoria
Boksburg	Springs
Brits	Westonaria
Klerksdorp	

Zone 4 Mpumalanga South

Carolina	Piet Retief
Eerstehoek	Wakkerstroom
Ermelo	Waterval Boven

Zone 5 Maputaland

Ingwavuma

Zone 6 Zululand

Babanango	Mtonjaneni
Lower Umfolozi	Mtunzini
Eshowe	Nkandla
Hlabisa	

Zone 7 KwaZulu-Natal Midlands

Bergville	Mooi River
Camperdown	New Hanover
Estcourt	Pietermaritzburg
Impendle	Pinetown
Inanda	Richmond
Kranskop	Umvoti
Lions River	Vulindlela
Lower Tugela	

Zone 8 KwaZulu-Natal North

Dundee	Paulpietersburg
Newcastle	Utrecht
Ngotshe	Vryheid

Zone 9 KwaZulu-Natal South

Alfred	Port Shepstone
Durban	Umlazi
Ixopo	Umzinto
Mount Currie	Underberg
Polela	

Zone 11 Eastern Cape

Bizana	Mqanduli
Cathcart	Ngqeleni
Elliot	Port Elizabeth
Engcobo	Qumbu
Hankey	Siphageni
Keiskammahoek	St Marks
King William's Town	Stockenstrom
Komga	Stutterheim
Kwa-bhaca	Tabankulu
Libode	Tsolo
Lusikisiki	Umtata
Maclear	Umzimkulu
Maxesibeni	Xalanga

Zone 12 Southern Cape

George	Knysna
Humansdorp	Mossel Bay

Zone 13 Western Cape

Belville	Riversdale
Bredasdorp	Somerset West
Caledon	Stellenbosch
Cape Town	Swellendam
Ceres	Tulbagh
Heidelberg	Wellington
Montagu	Wynberg
Paarl	

Symbols, Abbreviations and Conversion Factors

(a) Symbols and abbreviations used

-	=	nil or negligible
m^3	=	cubic metres
t	=	metric tons
Pvt	=	Private sector
Pub	=	Public sector
ha	=	hectares

(b) Rounding

All figures are rounded to the nearest full number. Totals of number lists may therefore show minor rounding differences.

(c) Conversion factors

Conversions between metric tons and cubic metres of roundwood have been made using the following conversion factors:

Softwood

Sawlogs 1 ton = $0.94m^3$
Pulpwood 1 ton = $1.0m^3$

Eucalyptus grandis

Sawlogs 1 ton = $0.94m^3$
Pulpwood 1 ton = $1.47m^3$

Other Gum Species

Sawlogs 1 ton = $0.78m^3$
Pulpwood 1 ton = $1.25m^3$

Wattle 1 ton = $1.138m^3$

Poplar 1 ton = $1.03m^3$

COMPARISON OF 2006/2007 WITH 2005/2006

Introduction

The reliability of the figures recorded in the industry statistics report is largely dependent on the completeness of information obtained. Although the number of returns received this year is fractionally higher than the previous reporting year, it is still evident that there are a number of potential respondents whose information is not included in this publication.

A number of plantation owners not included in the original mailing list were noted during the statistics information gathering process. These plantation owners will be included in the next circulation. Similarly, a number of additional buyers of roundwood were identified from various sources and also from completed plantation owner forms received. These too have now been included in the next circulation.

Despite these known shortcomings in terms of the number of plantation owners and primary processors we believe that the results are substantially adequate for interpreting the state of the South African forestry industry for the 2006/2007 reporting period. The South African timber industry is characterised by a limited number of major plantation owners and processors all of whom supplied the requested information.

Plantation Area

The 2006/2007 reported area of 1 266 194 hectares is 15 325 hectares, 1.2%, less than the 1 281 519 hectares reported for 2005/2006.

A comparison, by province, of the 2006/2007 reported plantation area and the area included in this Report is given in the table below.

[redacted]

Purpose of Plantations

Plantations are generally grown for a specified purpose, as this will dictate the appropriate silvicultural practice. Notwithstanding the intended purpose for which the plantations are grown, the actual sales mix at the time of harvesting will invariably include other forest products.

This Report reflects a small change in the intended purpose for which certain softwood and hardwood plantations are grown as shown in the table below.

[redacted]

Product	2007 Softwood %	2007 Hardwood %	2006 Softwood %	2006 Hardwood %
Sawlogs	65	3	69	3
Pulpwood	33	80	30	79
Mining Timber	-	11	0	12
Other	2	5	1	6
TOTAL	100	100	100	100

Timber sold as mining timber has again experienced a decrease over the past reporting period and this has been confirmed in this Report by a decrease of 22.9% but timber sold to chip manufacturers, who sell hardwood pulpwood chips to Far Eastern markets, has remained more static.

Sales Volumes from Plantations

A comparison of sales volumes from plantations for the period 2006/2007 and 2005/2006 is shown in the table below.

[redacted]

Changes in sales volumes would generally reflect changes in market conditions between reporting periods and this probably accounts for most of the difference seen in the above table. A further contributing factor for the lower sales volumes, were the devastating fires that occurred before and within this reporting period. The lower sales volumes, 10.2 %, reflected in the table above are consistent with market indicators.

Estimated Understatement of Reported Plantation Area and Processing Capacity

A comparison of total sales of timber with total purchases of timber by processors indicates a similar overall volume. However, a closer examination reveals that sawlog sales from plantations were considerably higher than the reported volume purchased by sawmills. Conversely the volume of pulpwood purchased was well in excess of reported plantation sales. It is highly likely that some of the difference can be attributed to different interpretations of product descriptions by respondents but it is doubtful that this would account for the major portion of the difference.

The following analysis will provide the user of these statistics with some appreciation of the possible magnitude of the understatement of both the plantation area and the processing capacity represented in this Report.

The reported pulpwood purchase volume by processors exceeds reported sales volumes from plantation owners by 0.75 million tons. This is a decrease of 0.51 million tons compared with the previous year. It is a known fact that in the given reporting period, hardwood stockpiles of pulpwood had decreased and could account for some of this difference. The plantation owners would have sold their timber to the buyer's depot directly or holding areas, as a shortage of available timber was experienced during this period. Pulpwood purchases are concentrated amongst a few major processors all of whom are included in the processing statistics whilst the supply base is widely spread. Given the relative certainty of the pulpwood purchase volume and assuming that 1 006 212 m^3 of the sawlog volume difference can be offset against the pulpwood difference. A plantation area of between 700 hectares and 1 000 hectares, in cycle, would be needed to support this annual timber volume difference. This area represents between 0.06% and 0.08% of the 1 266 196 hectares reported in this publication.

If the same offset assumption is made for the sawlog volume difference of 1.01 million cubic metres, the sawn timber production and sales volume are understated by between 240 000 cubic metres and say 270 000 cubic metres. This volume of sawn timber would have a value in the range of R80 million and R90 million, which represents approximately 0.46% of the reported industry sales value of R18 465 million. The sawlog sales can be regarded as being more accurate than the sawlog purchases because the major sawlog plantation owners are known to be included in the plantation statistics whilst sawlog processing is widely spread across many sawmills many of whom are known not to be included in the survey.

Although this above analysis is arguably an over simplification of the differences it is nevertheless our view that the statistics as reported are sufficiently adequate for general industry interpretation.

COMMERCIAL TIMBER RESOURCES

Plantation Inventory

The basic unit for the collection of information is the plantation unit, which comprises an area of land on which timber is grown for industrial or commercial purposes and which is:

(a) producing, or physically capable of producing, usable crops of wood or wood products;
(b) economically available now or in the future;
(c) not withdrawn from harvesting of the plantation produce; and
(d) situated, wholly or mainly, within a specific magisterial district.

A plantation unit may comprise one or more stands of plantations, consisting of one or more timber species, irrespective of these stands or plantations being contiguous or not, provided they are managed as a single unit.

Area under Plantation

Of the 122.1 million hectares of land in the Republic of South Africa, only 1.0% of the area was under commercial plantations in 2007.

Table I (page xiv) shows the distribution of the plantation area under each of the twelve forest economic zones and the extent to which the area in each zone is owned by either the private or public sectors.

Ownership Pattern

The distribution by size classes of both privately and publicly owned plantations in South Africa is shown in Table II on page xv.

Of all reported commercial plantations 83% (1 051 223 ha) is under private sector ownership whilst the other 17% (214 971 ha) is under public ownership. The extent of public ownership has decreased significantly as the partially completed SAFCOL privatisation process is finalised.

Only 13.1% (165 705 ha) of the plantation area is owned by 609 individuals, partnerships or family trusts, most of whom with an average area of less than 500 hectares each. Please note that the individual grouping includes several thousand hectares of plantations owned by many small growers under timber outgrower schemes operated by various corporate plantation owners.

Distribution of Timber Species and Ages

Table III (page xvi) shows the distribution of timber species groupings in each of the forestry economic zones. Pine and other softwood species are dominant in the Northern and Southern regions whilst the various hardwood species are dominant in the Middle (KwaZulu-Natal) region.

In recent years the area planted to various cloned hardwoods species has increased significantly in certain of the forestry economic zones, particularly in Zone 6 (Zululand). Most cloned hardwood species are *Eucalyptus grandis* based. The survey distinguished between *Eucalyptus grandis* and other *Eucalyptus* species but did not specify how cloned species should be classified. As a result, certain plantation owners recorded cloned species under other

Eucalyptus species whilst others included their cloned hardwood plantation area under the *Eucalyptus grandis* category. Care should be exercised in any interpretation of the data in this Report when distinguishing between *Eucalyptus grandis* and other *Eucalyptus* species.

Table IV (page xvii) reflects a summarised age distribution for each of the main species groups.

Detailed age class distributions for the various species in each of the forest economic zones are given in Tables A1.0 to A1.13 for softwoods and Tables A2.0 to A2.13 for hardwoods. These Tables can be found in Appendix A (pages 2 to 27).

Pinus patula is the softwood species planted most extensively in South Africa, comprising 340 766 hectares or 50.3% of the total softwood area. The species occurs mainly in Mpumalanga North and South, KwaZulu-Natal and the Eastern Cape. *Pinus elliottii*, comprising 28.4% of the softwood plantation area, is found in all regions except the Western Cape where *Pinus radiata* is virtually the exclusive softwood species. The total *Pinus radiata* area amounts to 59 190 hectares and is confined to the Cape regions.

The regions with the largest hardwood area are the Provinces of KwaZulu-Natal and Mpumalanga South where 46.9% of all hardwoods occur. The dominant species is *Eucalyptus grandis*, which accounts for 45.7% of the total hardwood area. South African hardwoods are grown primarily for pulpwood and mining timber production on an eight to twelve year rotation and hence the apparent young ages of the Eucalyptus plantations shown in Table IV.

Primary Management Purpose of Plantations

Table V (page xviii) summarises the main intended purpose for which the plantations are managed. It is important to note that despite timber growers having a primary intention for which the trees are grown, it is usual that a range of products may be actually sold when harvested. However, silvicultural practices may limit the range of alternate products available when the plantations are harvested.

55% of all plantations are managed for pulpwood, 36% for sawlogs, 5% for mining timber and 3% for other purposes. Softwoods are managed mainly for sawlog production (65%), whilst 80% of the hardwood area is managed for pulpwood production.

Detailed schedules of the management purpose by species and the planned clearfelling ages are shown in Appendix A, Tables A3.0 to A3.13 (pages 28 to 40).

Roundwood Sales

Table VI (page xix) provides a record of sales by product from the plantations in the demarcated forestry economic zones. It is apparent from the Table that pulpwood is the major product, whilst sawlogs are also a very significant product. Details of sales by species in each forestry economic zone are supplied in Tables A4.0 to A4.13 – see pages 41 to 53.

A comparison of the plantation sales volumes in Table VI with the roundwood purchases in Table B14 indicates some large differences. Some contributing factors are:

- Roundwood imports and exports
- Timber sold from plantations on a standing basis, where the ultimate use may not be clear
- Differences in reporting units of measurement and conversion factors
- Differences in reporting periods

- Errors in the completion of forms
- Sales are handled through intermediaries (e.g. Co-operatives)
- Differences in survey sample

The reasons listed above are unlikely to fully account for the significant differences in plantation sale volumes versus processor purchases mentioned above. The major growers of sawlogs and the major buyers of pulpwood are known to be included in the survey. It is therefore probable that the major reason for these differences is that not all plantation owners are included in the survey results and that a number of smaller sawmills are similarly not included. The impact of this is discussed elsewhere in this Report.

Damage to Plantations

Part of the potential annual volume increment is destroyed by fire, climatic factors, insects and diseases. Estimates of future timber supply must allow for this possibility. The plantation area lost or damaged reported in the 2006/2007 survey amounted to 97 593 hectares. Details of the causes of these losses are recorded by cause for each region in Tables A5.0 to A5.13 in Appendix A (pages 54 to 66).

Conversion of Existing Plantations

Market and other conditions dictate that plantation owners will convert portions of their plantations from one species to another or even convert plantation land to other uses from time to time. During 2006/2007, reported conversions from one timber species to another amounted to 8 297 ha whilst conversion from timber to other land uses amounted to 794 hectares. A large portion of the area converted from timber to agriculture and other uses relate to the introduction of environmental audits, FSC certification, etc. which ensures that riverine areas, river valleys and wetlands are restored to their natural vegetation.

Details of reported conversions are given in Appendix A Tables A6.0 to A6.13 (pages 67 to 79).

New Afforestation

In recent years the rate of new afforestation in South Africa has declined considerably due to a number of factors, such as suitable forestry land becoming increasingly less available and a tightening of the procedures for the granting of the necessary water licences.

48.4% of the newly afforested area comprised areas planted to Eucalyptus trees, 19.0% to softwoods, 31.3% to wattle trees and the balance of 1.2% to other hardwood species. The private sector was responsible for 100% of the reported new afforestation.

Details of new afforestation by species and purpose for which the trees are grown within each forestry economic zone are set out in Tables A7.0 to A7.13 in Appendix A (see pages 80 to 92)

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PRIMARY ROUNDWOOD PROCESSING

Introduction

The basic unit for the collection of information is a roundwood processing plant at a particular location. If a firm has two or more such establishments, each establishment is treated individually.

Table B10.0 in Appendix B (see page 94) reports the number of processing plants by region and the class of ownership. There are 162 processors included in the 2006/2007 reporting period and Table B10.0 shows that there are 178 plants in operations, the difference being that some processors have more than one plant in operation.

The distribution of roundwood processing plants by size of intake and type of processing is shown in Table B11.0 of Appendix B on page 95.

Capital Investment

The survey shows that the investment in fixed assets amounted to R15 781million for establishments engaged in primary roundwood processing of roundwood. See Table B12.0 on page 96.

The degree of concentration of capital investment by processing sector is shown in Table B13.0 on page 97. Pulp and board mills account for the vast majority of the total investment at 86%.

Roundwood Intake

The volume of roundwood intake by primary processor amounted to 19 809 million cubic metres of which pulpwood comprised 70.0%. The total intake by primary processing sector is summarised in Table VII (page xxii) and a more detailed analysis is given in Table B14.0 on page 98.

The delivered mill cost value of timber purchased was R5 167 million (2005/2006: R5 267 million), see Table B15.0 (Page 111).
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Sales of Products

1. Sales Value

The total value of reported sales of timber based products in 2006/2007 amounted to R18 465 million an increase of 17.8% on the value of R15 679 million reported for the 2005/2006 period. Woodpulp and paper products continue to dominate the industry accounting for R9 831 million (2005/2006: R7 352 million) or 53.2% (2005/2006: 46.9%).

Refer to Table B16.0 on page 112 for a list of all values.

2. Sale Quantities

The reported sales quantities for the major wood products and major pulp and board products are reflected in summarised Tables on the following page.

- **Quantity of sales of major wood products (Table B17.2 – page 114)**

Sawn timber	1 892 171	m^3
Poles	275 422	m^3
Mining timber	468 666	tons
Woodchips	4 264 196	tons

(The volume of wood products produced, as opposed to the volume sold, is reflected in Table B17.1 on page 113.)

- **Quantity of sales of pulp and board products (Table B18.0 – page 115)**

Paper grade pulp	567 690	tons
Dissolving pulp	545 423	tons
Particle board	527 805	m^3
Fibreboard	80 641	m^3

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APPENDIX A – Detailed Commercial Timber Resources Schedules

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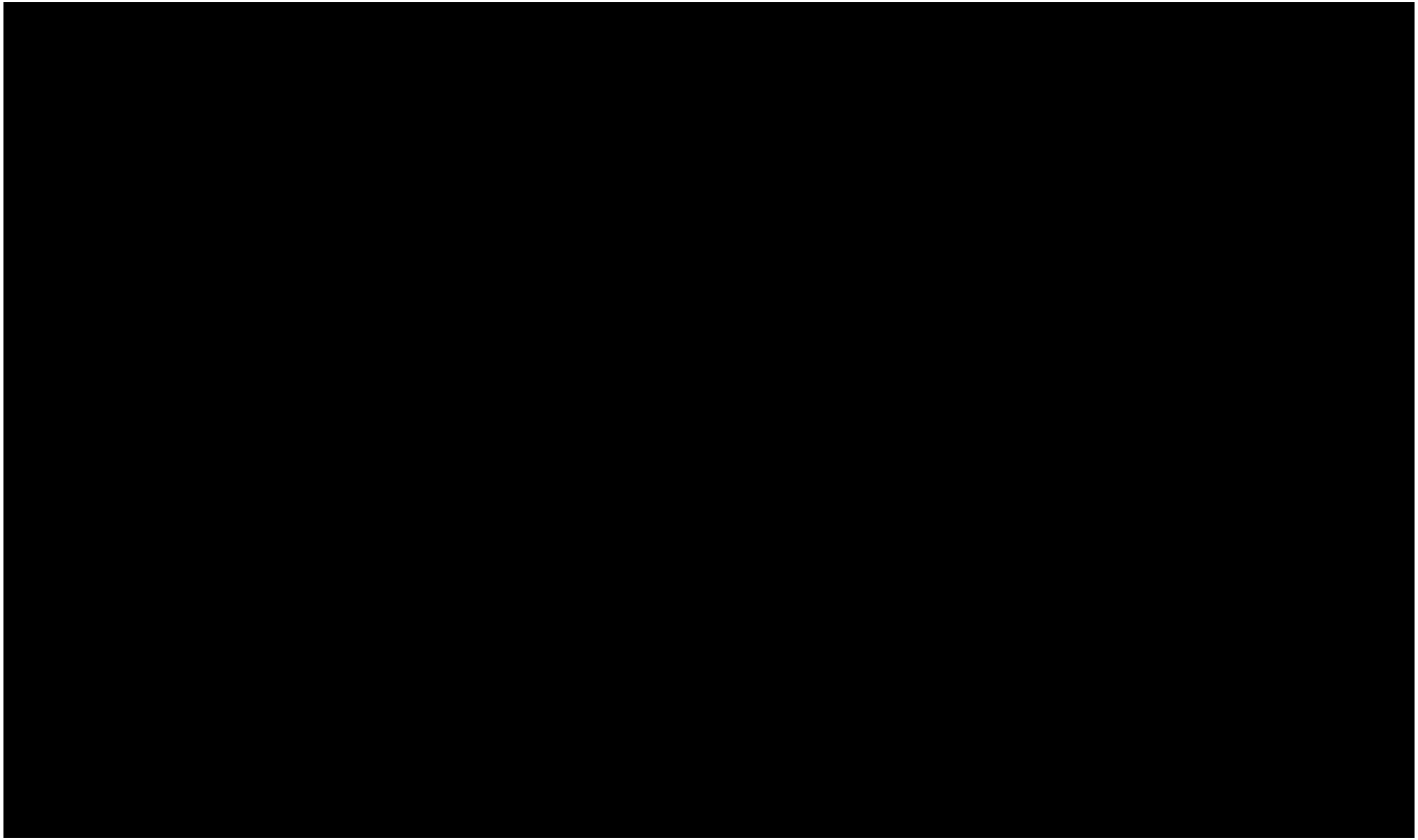

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APPENDIX B - Detailed Primary Roundwood Processing Schedules

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