

# Seed potatoes South Africa

Successful potato production is to a large extent dependent on the quality of the planting material. Due to the susceptibility of the potato to several transmissible diseases, it is not possible to multiply the same seed source for an indefinite period of time.

The South African potato industry has a sophisticated seed potato industry which plays a vital role in the growth of the ware potato and processing industries.

Nucleus seed schemes supply the potato industry with healthy planting material. Planting material is multiplied according to certain requirements, a process controlled by certification.

Only laboratories registered with the Department of Agriculture and accredited by Potatoes South Africa are allowed to conduct laboratory tests on seed tubers with regard to certain bacterial diseases and viruses before certification is confirmed.

## Certification

Certified seed potatoes are produced by approximately 200 registered seed potato growers under the supervision and administration of Potato Certification Service. Any potato producer who is able to comply with the requirements of the South African Seed Potato Certification Scheme may apply for registration as a seed grower.

Stringent requirements are set in respect of the production of seed potatoes and inspectors of Potato Certification Service ensure, by means of field and tuber inspections, that requirements are met.

Laboratory tests are conducted on seed tubers with regard to certain bacterial diseases and viruses before certification is confirmed.

The process of certification is monitored by a sophisticated data management system.

Approximately 10 000 hectares are registered annually for seed production.

## Laboratory services

**Potato Laboratory Service** determined the presence of harmful tuber borne diseases, eg. viruses and bacteria, before certification by having seed potato tubers tested.

**Our mission** is to render laboratory services to the potato industry of South Africa by:

- testing all planting material presented for certification to establish whether it complies with the disease tolerances prescribed by the South African Seed Potato Certification Scheme.
- determining whether planting material presented for certification is true to type; and
- providing diagnostic services.

**Our Laboratories undertake to render services to the industry which are:**

- based on sound scientific principles;
- performed by qualified highly trained staff; and

- cost-effective.

The focal points of the laboratories are:

- virus testing (PVY, PVX, PVA, PVM, PVS, PLRV and TSWV)
- bacterial wilt testing (*Ralstonia solanacearum*)
- *Erwinia* testing (*Erwinia carotovora* subsp. *carotovora*, *Erwinia carotovora* subsp. *atroseptica* and *Erwinia chrysanthemi*)
- true to type testing; and
- diagnostic services on request.

### **Concept of functioning**

In order to provide these services five laboratories have been established in South Africa, mainly in the major seed growing areas. The Coen Bezuidendhout Seed Testing Centre, the laboratory at Zeekoegat near Pretoria, acts as the controlling laboratory. One private laboratory, accredited by Potatoes South Africa, assists with the testing of planting material. All the laboratories are registered with the Department of Agriculture and is run in accordance with the prescribed procedures and control actions.

### **Benefits of testing laboratories**

Establishment of the presence or infection levels of harmful tuber-borne diseases which could be present in seed potato tubers.

### **Board of Directors & Management**

Each laboratory is owned by a private company. The Board of Directors of each company is constituted of democratically elected seed potato growers from the production areas which are serviced by the laboratory concerned. These laboratories are managed by Potato Laboratory Service.

### **Scheme**

The South African Seed Potato Certification Scheme functions under the Plant Improvement Act, 1976 (Act No 53 of 1976).

The Independent Certification Council for Seed Potatoes is designated as the authority which exercises the powers, performs the functions and carries out the duties conferred upon, assigned to or imposed upon the authority under the scheme.

The Council is comprised of democratically elected seed potato growers representing each seed production area, the Department of Agriculture, Agricultural Research Council, a representative of the Nucleus Material Production Forum, the Manager of Potato Laboratory Services and the Manager of Potato Certification Service. The Council is chaired by an independent Executive Chairman elected by the seed potato growers on the Council.

Potato Certification Service is contracted by the Independent Certification Council to manage and administrate the South African Seed Potato Certification Scheme.

### **Outline of the South African Seed Potato Certification Scheme**

## **Objective**

To supply quality seed potatoes to the industry.

The purpose of certification is to certify seed potatoes of which the phyto-sanitary status in respect of diseases and pests falls within predetermined norms.

## **Focal Points**

The focal points of the scheme entail:

1. Multiplication of initially disease-free seed potatoes initiating from *in vitro* material (test-tube plants) and the production thereof as Generation 0 in greenhouses,
2. Identification of generation 1 to 8,
3. Dual phasing-out of planting material,
4. Downgrading of material,
5. Promotion of the use of early generation planting material.

## **Generation Concept**

The Scheme is based on the generation concept which implies that the number of field multiplications which the seed potatoes have already undergone, is known and for this reason the generation is indicated on the certification label.

## **Phasing-out**

The Scheme is based on a dual phasing-out system, which takes the generation and quality class into consideration.

## **Generation**

The permissible disease content of seed potatoes increases with consecutive generations and for this reason phasing-out is coupled to the generations. This entails that the seed potatoes may be multiplied for eight consecutive generations, after which they may not be registered in terms of the Scheme again.

## **Quality classes**

Within each generation provision is made for three classes which represent the quality of the seed potatoes in respect of tuber diseases. These classes are known as **Elite**, **Class 1** and **Standard Grade**

Seed potatoes which are certified as Elite and Class 1 of a specific generation may again be used for the production of seed potatoes and specifically for the production of the following generation. Seed potatoes which are certified as Class 1 may qualify for the Elite class of the following generation.

The second phasing-out phase is implemented if seed potatoes presented for certification have been certified as Standard Grade. **This means that Standard Grade seed potatoes cannot be registered for the further production of seed potatoes.** Quality classes are identified by means of stickers of different colours, namely **red for Elite** and **green for Class 1** on the labels.

The Elite class represents seed potatoes of an exceptionally high standard based on visual inspections, while slightly more tuber diseases may be present in the case of Class 1 seed

potatoes. Standard Grade seed potatoes have to comply with the same standards for all generations and offer the opportunity to make certified seed potatoes of a lower standard available to the ware potato growers. The buyer is therefore fully informed with regard to the disease status of these seed potatoes.

## ***Downgrading***

The Scheme makes provision for downgrading. This implies that a planting may be downgraded to a following or even a lower generation during field inspections if norms are exceeded. During tuber inspection seed potatoes presented for certification may not only be placed in one of the three quality classes, but may also be downgraded to an appropriate generation. Resorting is permissible under certain circumstances. Exceeding of the virus tolerances for seed potatoes as confirmed by means of laboratory results may also result in downgrading to a following or lower generation.

## ***Benefits of the Scheme***

1. The building up of diseases in seed potatoes and the concomitant building up of diseases in soils will be limited.
2. The planting of early generation planting material will contribute to greater certainty that minimum seed-borne diseases are present in seed potatoes.
3. The fact that no uncertified material may be planted on the same field as registered seed potatoes, will combat the infection of plants by viruses and other diseases.

## ***Modus Operandi***

The following consecutive processes precede certification:

1. Registration of the unit 21 days after planting,
2. Two field inspections to evaluate the occurrence of diseases and variety purity,
3. Sampling with a view to testing for viruses and bacterial wilt at laboratories,
4. Tuber inspections for the determination of the phyto-sanitary status in respect of tuber diseases,
5. Certification of seed potatoes which is confirmed by means of labels and seals,
6. Post-control samples are drawn at the time of tuber inspection for the confirmation of the virus content and variety purity.

## ***Packaging***

Seed potatoes are usually certified in 25kg hessian bags. Certification in other units is done in consultation with Potato Certification Service.

After certification each unit is issued with a label stating the generation, date of certification, cultivar and seed grower number. A sticker depicting the quality class appears on the label.

## ***Data Management***

The database for seed potatoes as administered by Potato Certification Service provides detailed information with regard to each field registered for the production of seed potatoes. It is therefore possible for seed growers to obtain detailed information with regard to yields, occurrence of diseases and laboratory test results. The performance of seed growers is only available to other parties with the written consent of the grower. Any approved [request](#) in this regard will be processed.

Detailed production information is available for each region. This information includes area registered per month and bags of seed potatoes certified per month.

## Nucleus Seed Schemes

Nucleus seed is defined as in vitro planting material or tubers produced in a greenhouse by utilizing in vitro plantlets in the greenhouse.

There are currently eight nucleus seed production units in the country which produce generation 0 (mini tubers) planting material. Potato Seed Production (Pty) Ltd has a basic responsibility for providing limited quantities of healthy planting material to the industry and therefore this nuclear seed farm produces some of the most popular "open" cultivars. There is a tendency among other greenhouse / nuclear seed schemes to concentrate on the production of protected cultivars.

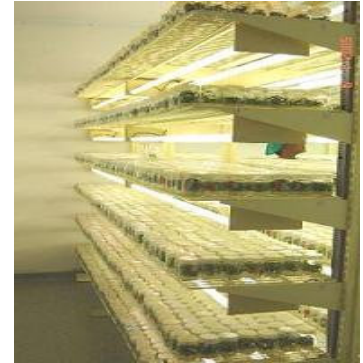
The following nucleus seed facilities are currently producing early generation planting material:

1. Advanced Potato Propagation  
E-mail: [fanie@fpd.co.za](mailto:fanie@fpd.co.za)  
PO Box 2956, **DURBANVILLE**, 7551
  
2. Ceres Aartappels  
E-mail: [cpotato@lando.co.za](mailto:cpotato@lando.co.za)  
PO Box 22, **PRINCE ALFRED HAMLET**, 6840
  
3. Potato Producers International  
PO Box 65, **MODDERRIVIER**, 8700
  
4. Potato Seed Production (Pty) Ltd  
E-mail: [enquiries@potatoseed.co.za](mailto:enquiries@potatoseed.co.za)  
PO Box 295, **LYDENBURG**, 1120
  
5. Rascal Seed Research (Pty) Ltd  
E-mail: [dawier@yebo.co.za](mailto:dawier@yebo.co.za)      [www.minitubers.co.za](http://www.minitubers.co.za)  
PO Box 351, **CHRISTIANA**, 2680
  
6. JH Laubscher Broers  
E-mail: [jhlaub@mweb.co.za](mailto:jhlaub@mweb.co.za)  
PO Box 10, **SANDBERG**, 8121

## Tissue Culture Lab

Our tissue culture laboratory employs highly experienced staff to ensure maximum productivity combined with strict sanitation and quality control. This ensures that our products are available in commercial quantities at extremely competitive prices.

Nuclear material in the form of a few in-vitro plantlets of different varieties are imported every second year from sources in the UK and Europe. Local varieties are sourced from the Agricultural Research Council of South Africa. These in-vitro plantlets are cloned every four weeks and grown under strictly controlled conditions in growth chambers in the laboratory.



## Minituber Production

The minitubers are produced in climate controlled insect proof greenhouses from in-vitro plantlets grown in Rascal's laboratory.

We have done extensive trials on new hydroponic minituber production techniques but have retained production processes using proven methods because of the unsurpassed and consistent quality possible using these techniques. Our growing practices in sterile media with trickle run to waste irrigation, does not involve recycling of nutrient water or harvesting of immature tubers and ensures minitubers of superior quality and vigour.

With production taking place throughout the year in greenhouses near Christiana and Jeffreys Bay, Rascal is the largest producer of certified generation 0 minitubers in Africa. Our current annual production is approximately 4,2 million minitubers.



## Minitubers

Our minitubers are tested and certified under the stringent regulations of the South African Seed Potato Certification Scheme which has a zero tolerance for all relevant potato pathogens.

Rascal's minitubers are exported to several countries and were used as minitubers of choice for projects of the Food and Agricultural Organisation of the United Nations because their superior viability and vigour makes them especially suited to adverse growing conditions.

For extremely cost effective minitubers of unsurpassed quality, contact us for a quotation.



## Processing industry

The South African processing industry grew by more than 100% from 1991 to 1995. This growth took place primarily in the three main disciplines in the processing industry, namely frozen fries, fresh fries and crisps. During the past five years this growth slowed down mostly because of economic reasons and a shortage of good quality potatoes for processing. This growth can be ascribed largely to the following factors:

- the changes in economic circumstances;
- the expansion in the fast-food industry;
- the higher average income of the population;
- the rapid rate of urbanisation; and
- the influx of international processing companies.

### Processing Forum

The Processing Forum meets regularly to ensure that all role players' needs are addressed and satisfied. The aim of the Processing Forum is to make the potato processing industry in South Africa even more consumer-driven and to adapt the research and cultivar development accordingly. The Forum already achieved great success in this aim. There is ongoing liaison with various international processing companies and in this way the industry is always able to keep abreast of world trends in potato processing.

### Regions (Processing)

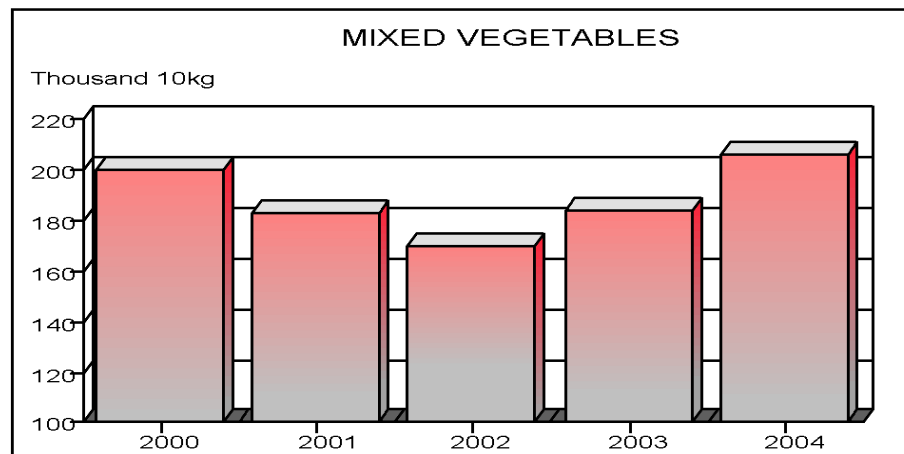
In the following figure the distribution of processed potatoes per region is illustrated.

The above figure also represents 17.8 million 10kg pockets that moves direct from farms to processors. The difference of 7.7 million 10kg pockets are going via the markets to the processors.

## The potato processing industry can be divided into the following disciplines:

### Mixed Vegetables

This discipline represented 0.62% of the total processing industry in South Africa for 2004.



### Cultivars

The cultivars most commonly used for mixed vegetables are Vanderplank, Buffelspoort and BP1.

### The main mixed vegetable manufacturers:

Company	Address	Telephone	Fax
Dimpho Fresh Food	Box 3746, Vereeniging, 1930	- (016) 421-3840	- (016) 422-1400
Golden Harvest	Box1206, George, 6530	▾ (0448) 73-3716	▾ (0448) 73-3917
McCains	Box 231, Springs, 1560	▾ (011) 365-3000	▾ (011) 818-4096

### French Fries (Fresh)






The manufacturing of French fries (fresh) has shown a decrease over the last couple of years. The above production is mainly contributed by a number of small processors. The decrease in production is the result of a decrease in the number of companies involved in the industry and the strong increase in frozen french fry production that took a large part of the market.

### Cultivars

The cultivars most commonly used for French fries (fresh) are Vanderplank, Up-to-Date, Buffelspoort and BP1.

### The main french fries (fresh) manufacturers:

Company	Address	Telephone	Fax
Dimpho Fresh Foods	Box 3746, Vereeniging, 1930	▾ 016-4213840	▾ 016-4221400
Errol Veg (direct)	Box 44294, Jeppies Town	▾ 011-6148463	▾ 011-6148463

Mannic Chips	Edenvale	 011-4526894	
Rooipoot Fresh Products	Box 25212, Monument Park, 0181	 012-3261388	 012-3263724
Super Chip	Box 150, Kraaifontein, 7569	 021-8844708	 021-8844102

## French Fries (Frozen)

Frozen french fries represent 43.9% of the total processed potato products in South Africa. There has been an increase in the manufacturing of the above product over the last couple of years. Expansion is mainly due to today's fast paced life-style leading to an increase in fast food consumption. The growth in production is also the result of expansion in the existing facilities.

### Cultivars

The most commonly used cultivars for French fries (frozen) are Vanderplank, Up-to-Date, BP1, Hertha and Shepody.

### The main french fries (frozen) manufacturers:

Company	Address	Telephone	Fax
Lamberts Bay Canning Co	Box 1, Lambertsbay, 8130	 027-4321101	 027-4322002
McCains	Box 1023, Delmas, 2210	 013-6651690	 013-6651275
Mine Corp Services	Box 69, Kliprivier, 1871	 011-9038963	 011-9038910





## Canned

Only limited quantities of potatoes are canned in South Africa. The canned food is mainly in the form of mixed vegetables where potatoes can contribute up to 20% of the mixture. These days one can also find skinned, baby potatoes in a can. The above industry is not that big and represents 1,2% of the total volume of potatoes for processing.

### Cultivars

The cultivars most commonly used for canned potato products are Vanderplank, Buffelspoort and BP1.

### The main canned food manufacturers:

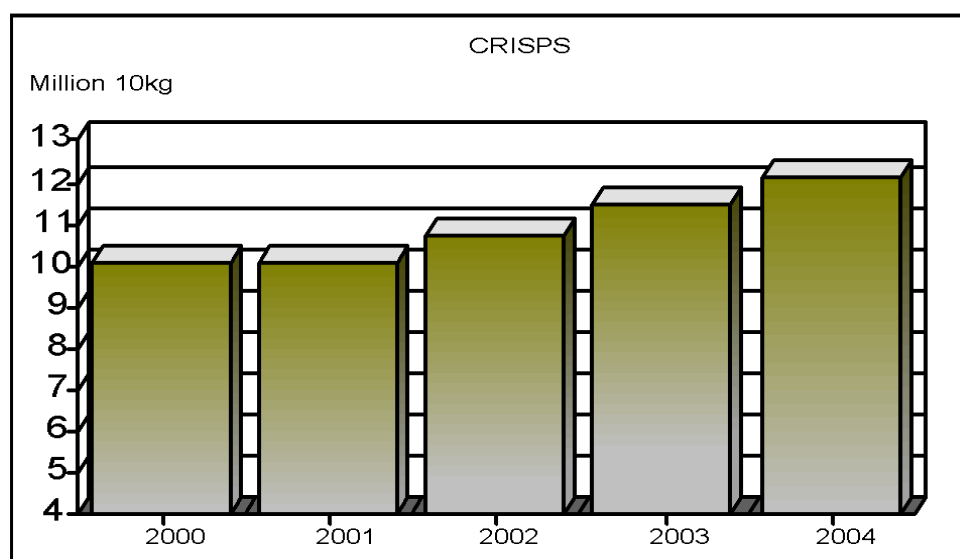
Company	Address	Telephone	Fax
Langeberg Koöp	Box 219, Boksburg, 1460	 011-9142214	 011-8998498
Giants Foods	P/Bag X2007, Louis Trichardt, 0920	 011-8948261	 01551-63171

## Crisps

The figure below shows the growth in the production of crisps over the last 7 years.

Crisps represent 36,6% of the total processed potato products in South Africa.

The steady growth over the past five years in production is the result of an expansion in existing factories and an increase in the number of companies involved in the industry.














### Cultivars

The cultivars most commonly used for crisps are Hertha, Pimpernel, Lady Rosetta, Fiana, Crebella and Erntestoltz.

### The main crisps manufacturers:

Company	Address	Telephone	Fax
Downmont Foods	Box 1386, New Germany, 3620	 031-7005129	 031-7004749

Frimax	Box 1047, Pietermaritzburg, 3209	 0322-338616	 0322-338622
Kavalier Foods	Box 1627, Germiston, 1400	 011-8732113	 011-8252932
L & C Messaris	Box 105, Elsiesriver, 7480	 021-5921030	 021-5914018
Willards	Box 251, Rosslyn, 0200	 012-5295300	 012-5411928
Poco Foods	Box 251, Bethal, 2310	 017-6471081	 017-6476107
Simba Quix	Box 99, Isando, 1600	 011-9745435	 011-3921294