



WITLOF

a new entrant to SA's leafy vegetables market

Witlof, also known as Belgian endive, is a notoriously difficult vegetable to grow, but Koue Bokkeveld grower **Fanie van der Merwe** has mastered the art, producing 1t of witlof a week. **Jeandré du Preez** visited him on his family farm, Bronaar, to discover how he does it.

The technique for growing witlof, or Belgian endive, was accidentally discovered in the 1850s by an employee at the Botanical Gardens of Brussels in Saint-Josse-ten-Noode, Belgium. He stored some chicory roots in a cellar, and when he saw them again, many days later, noticed that they had white leaves. Trying them out, he found that they had a good taste, and news of the discovery spread from there.

Producing witlof soon became a major industry in western Europe. The common name is from the Dutch *wit loof*, meaning 'white leaf'. The smooth, creamy

white leaves may be served stuffed, baked, boiled, cut or cooked in a milk sauce, or simply raw in a salad. The whiter the leaf, the less bitter the taste.

Witlof is a staple vegetable in Europe, where France is the largest producer. However, according to witlof grower Fanie van der Merwe, the vegetable is slowly but surely gaining popularity in South Africa too.

SA PRODUCTION

Four years ago, Fanie set out to cultivate witlof on his 2 033ha farm Bronaar in the Koue Bokkeveld just outside of Ceres

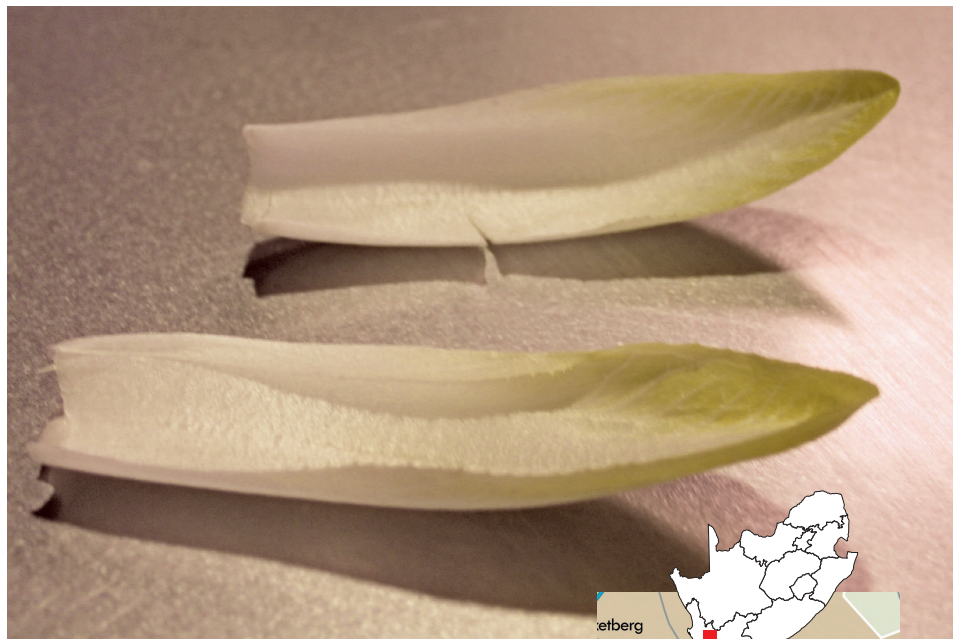
FAST FACTS

- Witlof was discovered by accident more than a century ago after chicory roots were left in a dark cellar.
- It is grown entirely underground or indoors in the absence of sunlight to prevent the leaves from turning green and opening up.
- SA farmer, Fanie van der Merwe, produces 1t of witlof per week, but has capacity for five times this volume.

ABOVE:
The second growing phase takes place in a dark room in a hydroponic facility, with the harvested roots stacked on trays.
PHOTOS:
JEANDRÉ DU PREEZ

in the Western Cape. His main focus on the farm was apples, pears, potatoes and onions, and witlof was initially brought in to diversify his business.

"Since then, the witlof operation has grown steadily, and today



FANIE VAN DER MERWE

we employ 10 ladies who work in the packhouse and hydroponic facility and tend to the roots," says Fanie. "We supply 1t of witlof a week to supermarket chains across the country."

TOP:
All leftover roots and leaves are collected in a bin and used as feed for the livestock on the farm.

ABOVE:
Witlof is a versatile vegetable that can be enjoyed cooked or raw. The boat-shaped leaves can also be used as 'plates' for fillings, such as tuna or prawn cocktail.

THE TECHNIQUE

According to Fanie, witlof production is costly, coming in at almost R350 000/ha. He has 10ha under the crop.

Growing the vegetable is a two-step process.

- **Phase one: hot and cold**

Witlof is sown during January. "The optimal growing months are from mid-summer to autumn," explains Fanie.

It requires hot temperatures while growing, and extreme cold, especially during the last two months of growth phase. "This makes the Koue Bokkeveld ideal for witlof production."



As with any other vegetable seedlings, witlof seedlings are highly sensitive to moisture stress and need to be watered regularly when temperatures are high.

"The first growing phase is a water-intensive operation, using an average of between 7 000m³ and 10 000m³ water per season," says Fanie.



Unsurprisingly, the drought has affected the quality of the roots. "Our average rainfall is usually between 650mm and 700mm. Up to now we've measured only 250mm."

the germination rate of the seed is only 50%, he adds.

On Bronaar, he sows approximately 350 000 seeds/ha of which only 150 000 (42%) germinate. The plants have to

LIGHT EXPOSURE LOWERS THE QUALITY OF THE WITLOF

Because of the low yield, he had to import roots from the Netherlands, which he stored and grew in his hydroponic facility.

According to Fanie, the germination can be extremely challenging. "A witlof seed is full of nonsense," he says bluntly.

Even in the Netherlands, which is renowned for its witlof,

be kept just below the soil surface as they grow, showing only the very tip of the leaves. After about five months, the seeds develop large tap roots, similar to a parsnip.

They are harvested when these roots reach 16cm. The roots are then washed and placed in cold storage (-1,5°C).



ABOVE: The whole hydroponic system is monitored and adjusted by a computer system to ensure consistent quality.

LEFT: The hydroponic facility and packhouse provides work for 10 employees. Jurine Joseph, the team leader, is responsible for second-phase growing. Here, she and her team are inspecting the witlof heads to remove loose, open heads or blemished leaves.

• Phase two: hydroponic forcing

After cold storage, the roots are packed side by side into large trays that hold 350 roots/m².

These are then stacked in a dark temperature-controlled room and fed a nutrient-rich water solution.

This is the second growing phase, during which witlof leaves are grown by forcing new growth from the harvested roots in a controlled environment.

"This method produces the cleanest and best-quality witlof," explains Fanie.

It is important to monitor the temperature, airflow, humidity and pH of the water to prevent the roots from drying out, he stresses.

These aspects are controlled by a computer in his facility.

The process must take place entirely in the dark so that the shoots that form on the roots remain white.

"When exposed to light, the leaves turn green and lower the quality of the witlof," Fanie says.



There is no demand for green witlof. After about three weeks in the dark room, the witlof is carefully broken from the roots.

At this stage, the witlof should weigh between 100g and 170g, and have a whitish-yellow colour.

The packhouse workers remove any loose, open heads or blemished leaves, along with any leftover parts of the root. These are then used as feed on the farm.

Fanie supplies witlof to the local market throughout the year, and his hydroponic facility has the capacity for five times the current volume.

According to Fanie, introducing a product unfamiliar to local consumers has proved a challenge, and he is engaged in an extensive marketing campaign to educate South Africans about the health benefits and versatility of the crop.

ABOVE:
While expensive, witlof is a high-value product. It is high in fibre, low in carbohydrates and high in Vitamin B and folate.
FOTOLIA

RIGHT:
Bronaar currently supplies witlof to Woolworths, amongst other retailers.
COURTESY OF WOOLWORTHS

A PREMIUM PRODUCT, PRICED ACCORDINGLY

At this stage, Bronaar supplies witlof to Woolworths, Food Lover's Market, Checkers and quality grocers.

The current price for the product ranges between R70/kg and R110/kg.

While Fanie concedes that this is expensive for a leafy vegetable, he adds that consumers have to realise it is a high-value product.

Moreover, witlof is also healthy, and has a high fibre content, but is low in carbohydrates. The leaves are also rich in

vitamins and minerals, especially folate and Vitamin B.

"I'm not going to become a millionaire overnight producing witlof, but the potential of the product is there," he says.

"Introducing witlof to Bronaar also got me utilising water optimally, and it's a resource that's becoming scarcer.

"It has also enabled me to generate income and work throughout the year."

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• For more information, visit bronaar.co.za/. ■FW