



**STARKE
AYRES®**



SWISS CHARD

PRODUCTION GUIDELINE

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SEEDS OF SUCCESS

SWISS CHARD

BACKGROUND AND HISTORY

Swiss Chard belongs to the beet family of vegetables and has been cultivated in Europe for thousands of years. Due to its extensive cultivation in Switzerland it has been referred to as Swiss Chard. In South Africa it is often called spinach and has been a substitute for spinach. It has thicker leaves and is higher yielding than true spinach. Technically Swiss chard is not a spinach and is more closely related to beetroot than it is to spinach. Swiss chard is a very good source of vitamin A, K, C, magnesium and manganese.

CLIMATIC REQUIREMENTS

Swiss Chard can be produced under mild to cool conditions. It is advisable not to plant Swiss chard under conditions where frost is prevalent during the winter. Swiss Chard can tolerate light frosts but ongoing frost may damage the plant and suppress optimal production. Under hot conditions Swiss chard grows well, but extreme hot weather may cause problems producing leaves with good quality. Hot conditions are also not conducive to the holdability of the final product if this is not managed properly.

Temperature guidelines:

- o Minimum temperature: 8-12° C
- o Optimal temperature: 12 -24° C
- o Maximum temperature: < 32° C

PRODUCT TYPES

The most sold cultivar of Swiss Chard in South Africa is FORD HOOK GIANT, a green leafed white stalked variety. The leafy portion of Swiss chard is always deep green, while the stalk of different cultivars can be white, bright yellow, green or red. Other Starke Ayres varieties include: STAR 1801 and GREEN WAVE.

SOIL REQUIREMENTS

Cultivate Swiss Chard where possible, on sandy loam to loamy soils with good draining characteristics.

Avoid soils with pH below 6. Apply agricultural lime to rectify acidity problems 2-3 months before the intended planting date of Swiss Chard.

Plant population: direct seeding:

A plant population of between 250 000 – 280 000 plants/ha are seen as optimal for direct drilling.

In row spacing: approximately 10-15 cm in rows (direct seeding).

Between row spacing: 450-500 mm between rows (direct seeding).

Planting on raised beds are the best way to produce Swiss Chard.

Plant population: seedling transplants:

A plant population of between 80 000 – 100 000 plants/ha are seen as optimal for seedling transplants with Swiss Chard.

The same beds can be used for seedling transplants as is the case with direct seeding of the seeds.

Planting on raised beds are the best way to produce Swiss Chard.

FERTILISATION

It is essential to have a soil analysis done prior to fertilisation. Below are general recommendations

- o N required (kg/ha): 5.0 kg N/ton product (125 kg N/ha)
- o P required (kg/ha): 0.9 kg P/ton product (20-25 kg P/ha)
- o K required (kg/ha): 5.0 kg K/ton product (125 kg K/ha)
- o Ca (Calcium) & Boron: Apply as foliar feed during the growing season; alternatively, apply CaNO₃ as a top dressing to the plants during the growth stages.
- o Micronutrients: Apply a broad spectrum foliar feed that will supply all the micro nutrients to the plant.

As a general guide, use 500 to 1000 kg 2:3:4 (30) per hectare, depending on soil fertility at planting, followed by 175 to 225 kg LAN / ha at 4 weeks and again at 8 weeks.

IRRIGATION

A total requirement of 380-450 mm of water / ha is needed for successful production of spinach.

Swiss

Chard is sensitive to moisture stress and frequent irrigations with smaller amounts of water are better than

heavy applications at longer intervals.

Broad guidelines for irrigation of Swiss Chard:

Post planting - emergence: 15-20 mm water/week

Emergence seedling establishment: 20-25 mm water/week

Seedling establishment maturity: 25-35 mm water/week at regular intervals.

Very important: the guidelines above are only general guidelines and may vary from region and soil types

used for Swiss chard production.

MAJOR PESTS AND DISEASES

Diseases

Cercospera

Bacterial spot

Downy Mildew

Damping off (seedlings)

Pests

Nematodes

Cutworms

Aphids

Leaf miner

Snails

HARVESTING AND MARKETING:

- o Swiss Chard is selected for size and maximal recovery of clean leaves that are mid maturity to young leaves. Older and yellowing leaves are avoided when making the harvest cut. Generally 3-4 weeks of re-growth are required before a second harvest will yield adequate volume.
- o Optimal storage conditions:
 - o 0-2° C at a relative humidity (RH) of 95-98%
- o Swiss Chard is highly perishable and will not maintain good quality for more than 10 days without proper storage.
- o Exogenous ethylene (I.e. ethylene from sources in the vicinity of stored Swiss Chard) is a high risk. Swiss Chard is highly susceptible to decay associated with ethylene.
- o Ethylene damage on Swiss Chard leaves will normally show up as yellowing of the leaves.
- o Freezer burn will be initiated at -0.3° C. Freezing injury results in water soaked lesions followed by rapid decay associated with soft rot bacteria.
- o Care should be taken not to damage the leaves whilst harvesting the product. Bunching ties should not be too tight as crushed or split petioles may lead to decay.

INDEMNITY

All technical advice and/or production guidelines given by STARKE AYRES or any of its personnel with reference to the use of its products, is based on the company's best judgement. However, it must be expressly understood that STARKE AYRES does not assume responsibility for any advice given or for the results obtained.