

Growing strawberries – under-cover practices

Strawberries are a tricky crop, mainly because of its historical genetic development which dictates its requirements for successful plant development and high production.

Strawberries developed from a genome that adapted itself to certain climatic conditions in the Northern hemisphere which forced it by genetic evolution to sustain cold winters. Also transform into fully mature and productive plants a in short spell, to reach its peak production when temperatures are still moderate and to produce runners (Vegetative reproduction) when temperature are not suitable and support fruit production. The cold winter and short day light forces the plant to dormancy - a phase vital for its recovery in spring since new crowns are formed during the dormancy stage.



Strawberry's is a crop in demand around the world with annual consumption estimated to be at about 7 billion pounds produced around the globe in 75 or more countries.

In South Africa it is a growing market. Due to its climatic diversity Strawberries are grown in most of the coast line areas but not only there - in fact it is commercially grown in Gauteng area where the extreme temperature variations between Summer / Winter are a major issue.

STRAWBERRIES – GROWING PRACTISE IN OPEN FIELD

Growing Strawberries in open field is a practice used for the last 100 years or so, using raised beds in suitable soil.

Strawberries thrive in light soils and require constant irrigation due to its shallow root system.

The main challenge is to



overcome the short days and cold period of winter without extensive damages to the plant. Some growers use plastic mulch some use straw to cover the beds.

In Australia, Israel and other large strawberry producing countries the usage of low tunnels is a practice proven highly successful since plants under that cover conditions developed earlier than mulch cover. Further, as temperatures rise in late winter, plants are in full production. Low tunnels require a certain structure to allow opening and closing mechanism for sufficient ventilation certain structure to allow opening and closing mechanism for sufficient ventilation and to reduce over-heating later in spring.

Low tunnels are a permanent feature that keep soil temperature even during the cold period or protect crops during heavy rains and hail storms. The usage of frost protecting layer sheets during cold months is sometimes causing more damage.

If stretched properly while leaving a space of air layer between the sheet and the plant it can work but it is not an easy task to achieve. The sheet layer on the plants tops will keep pushing downwards creating a contact between the sheet and the leaves and sprouting crowns, causing them to freeze and rot.

STRAWBERRIES IN HYDROPONICS

Hydroponics methods are used to cultivate strawberries successfully during the last 30 years or so.

Using the hydroponics method constitutes immediate challenges:

- **The Strawberry Plant root system –** Strawberries have a shallow root system that is highly sensitive to water logged media or to fast drying media.

- **The production per space –** Since the need is to produce large quantities of fruit preferably in “out of season” requires an increase of plant density without compromising the fruit quality.
- **Light distribution -** Strawberries are plants that produce its best in optimal conditions; correct temperature range and enough light. If one of these parameters are not in place, the plant becomes stunned and total yield per plant will be reduced significantly.
- **Logistical issues -** Handling the plants, harvesting, packing, spraying etc requires easy access to the plant's growing space.

Hydroponics growing methods using under cover protection provide at least theoretically the answer for temperature

control but not always necessarily for the light distribution. Since the need of a grower is to produce marketable quantities in a considerable short or medium long production season, plant density is pushed to the maximum. In experiments concluded around the world in comparing densities of 11 to 22 plants per sq/m all conclusively show that the higher the density less quality marketable fruit is produced and overall fruit weight and fruit per plant remain averagely the same. One of the main reasons affecting the overall plant production and development relates to light distribution in the tunnel. Plants on the shade side will under-develop in comparison to fully exposed plants on the sunny side.

