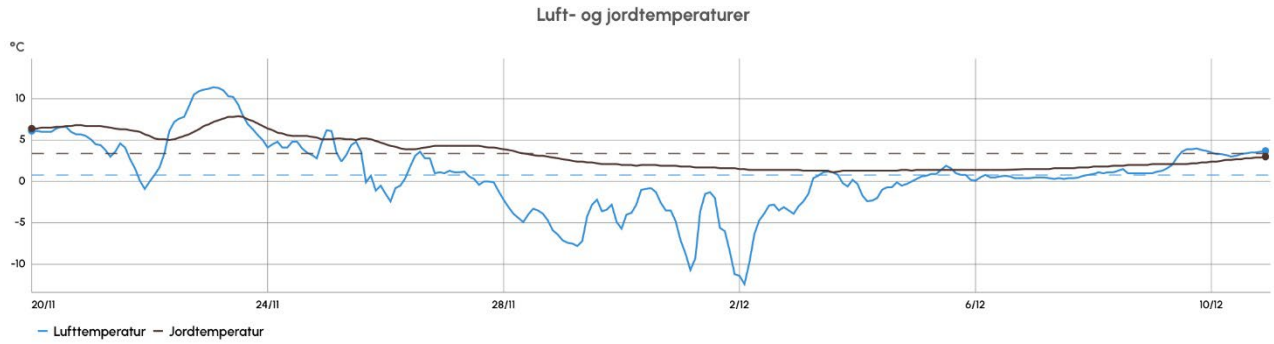
Demonstration field day at DanRoots in carrots for strawing

Farmer visit and knowledge sharing 22nd of October

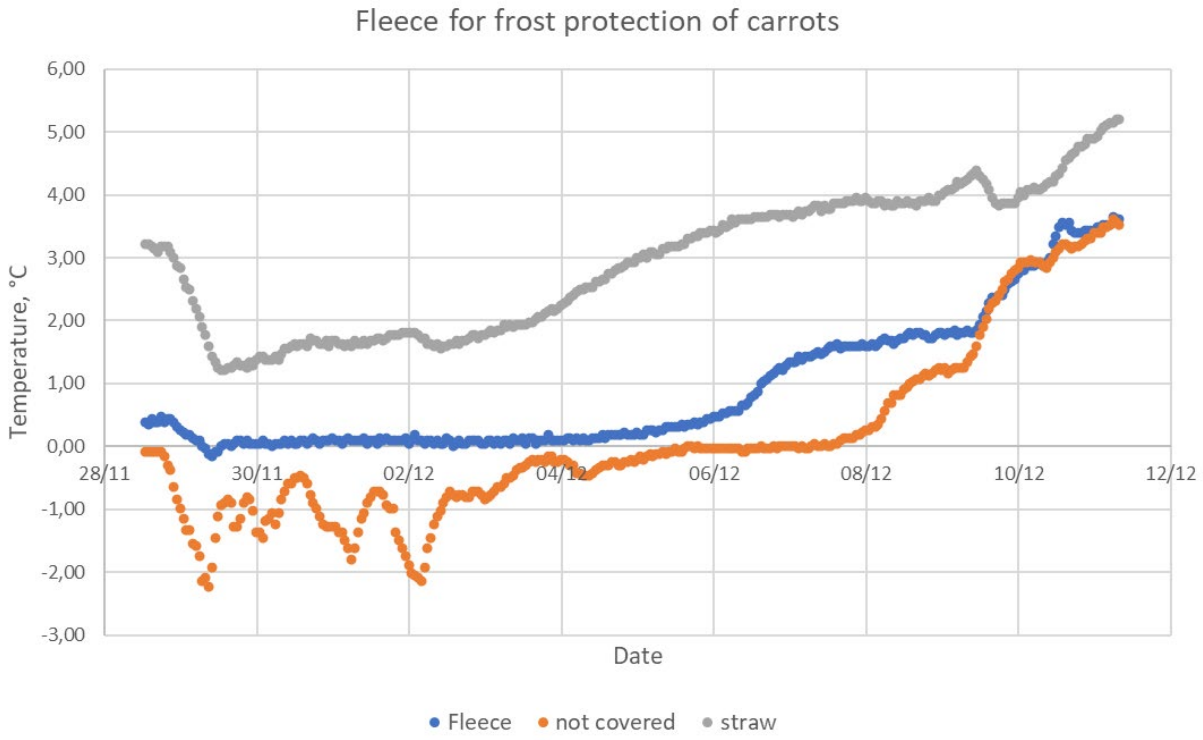
Appendix for the field day alternatives for strawing carrots

Fleece for frost protection of carrots

The effect of fleece has been demonstrated in a field at Ulfborg.
The variety is one with strong green canopy all autumn. In this case it is Nazareth, but it could also be Brillyance or Florance with dense green leaves in late autumn.
Field was hilled before canopy cover, so that the crowns are covered with a thin layer of soil.
Harvesting has been done in the field with top lifters right up until 27 November.
On 27 November, the carrots were covered with 19 g of Fleece next to an uncovered bed and the rest of the field was covered with straw.
On 25 November, we have the first night frost in Denmark with down to ÷6°C and a few more degrees lower in the following days. On the trial site, the frost is not quite as hard, but still hard enough (÷2°C) to allow uncovered carrots to freeze after a few days. The temperature droped steadily below ÷10°C on 1 and 2 Dec.
On 30 Nov. a very small amount of snow falls which adds to the protection of the carrots on 1 and 2 Dec.



Blue curves are the air temperature at the nearest weather station in Ulfborg.



The orange curve shows the soil temperature close to the crown of the carrots. It neatly follows fluctuations in air temperature. Despite the dense green top of the Nazareth variety, it alone cannot keep the carrots frost-free even at just ÷2°C.
The blue curve is the soil temperature at the crown of the carrots under fleece. For the whole period, the temperature does not really get below 0°C. This is largely due to the fact that it is almost windless throughout the period. The fleece and the green top of the carrots ensure stagnant insulating air at ground level.
The gray curve is the temperature at the ground level under straw cover. The first sharp falls are due to the night frost. Then comes a small sprinkle of snow, which causes the temperature to rise again under the straw.

The test indicates that dense green carrot tops covered with fleece can provide effective frost protection of carrots – provided that it is not windy.
Whether it is fleece or plastic that is used for frost protection of the carrots is not decisive. At this time of year, the light radiation is so low that the sun does not provide heat under plastic/fleece of any significance. The wind speed while it is freezing is much more important.

No Fleece. Despite a dense green top, the carrots have suffered frost damage.

No fleece.
(photo Preben Bendtsen)

The fleece has been pulled off and there is still a healthy green top.

Carrots covered with fleece.
(photo Preben Bendtsen)

Background

On average of 30 years, the first real night frost comes on approx. 20 November. The first frost in November-December is often only a few days with light night frost and to a degree where mulching, dense green tops or Fleece can protect the carrots to a sufficient degree that they can be harvested until Christmas without being lost. Fleece is often chosen as an emergency solution, where the carrots are left uncovered in the field right up until Christmas and are only used when the weather forecast promises frost. The strategy can be used in combination with other frost protection strategies.

Variety selection:

There are varieties that occasionally turn out to be less exposed to frost than others. It can be late varieties with extra dense strong green tops in late autumn, such as Brillyance, Nazareth and Florance. These can be varieties that sit deeper in the soil and do not push upwards so that the crown is exposed to frost – e.g. Octavo. It can also be varieties that genetically have better frost tolerance, such as Eskimo.

Hilling:

Before the carrot canopy close in the rows at the end of July, mulch up soil around the plants so that the crown is covered. A heavy hilling also means that there will be a deep groove between the rows, where the frost comes in from the sides if it freezes for a long time. Hilling has only a small short-term effect, but in combination with Fleece, it can be enough for short-term frost protection.

Some of the disadvantages of fleece cover are that 1) it is expensive, 2) the fleece only protect against light short-term frost, 3) the fleece can blow away, 4) when it freezes, it is difficult to pull the fleece off again to harvest and 5) it is difficult to drive in the field if there is a need for additional frost protection.

22.10.2024, lrm

Demo in carrots

In 2023 and 2024, HortiAdvice will carry out a demonstration of alternatives to straw and plastic for frost protection of carrots at a number of nurseries with the production of carrots.

Promilleafgiftsfonden
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