

Double layer crop covering technique**Background :**

The double sheet technique consists of covering crops with two separate layers of crop cover to create additional entrapped air and an enhanced thermal effect.

Advantages:

During hard climatic periods higher levels of thermal effect correspond to enhanced soil warming which assists in good root growth which improved the establishment of the young plant.

The thermal effect of double sheet covers can allow a gain in earliness of up to 7 days and thus a better early sales price.

Application:

After planting, crop is covered with 2 layers of crop covers, one on top of the other:

- The inner layer that will be maintained until close to cropping. It should be air and water permeable and have good air renewal characteristics. Either 17gsm or a 19 gsm fleece with high air permeability are recommended, depending on the crop (for strawberries in general 19gsm, for lettuce 17gsm). This sheet is generally secured with soil at 1 meter intervals.
- A top layer that can be removed preferentially as ambient temperatures rise. It should be permeable but primarily have a high thermal effect. Generally a 500 holes perforated PE film or a second fleece is used.

The top layer is anchored with sand bags instead of soil. Set-backs have to be avoided on very early crops and the top layer should be removed punctually when temperature rises. Anchoring with sand bags gives the flexibility required to remove the top layer, whilst leaving the inner layer in position to protect against later season temperature, insects and weather. The top layer will be removed totally when temperature grow and sunlight increases.

Timing :

Double sheet covering is used for very early cropping, end of winter beginning of spring. At this time of the year, climatic conditions are often rude: external aggressions (snow, strong wind, hail...), days are short, temperatures and light are low.



Test details (Trial Fiberweb France, 2013).

Crop	Lettuce, Batavia
Region	Alsace, France
Planting date	27 February
Harvest date	29 April
Removal date	16 April
Parameter measured	Air and soil temperature

Double sheet crop covers allows a significant increase of soil and air temperature compared to control non covered. In average for this trial, air temperature gain is 4.46°C and soil temperature gain is 3.98°C.



Average Air Temperature	Control (non covered)	Covered (17g+perforated PE film)
Average °C	5,7	10,2
Min °C	-6,3	-3,7

