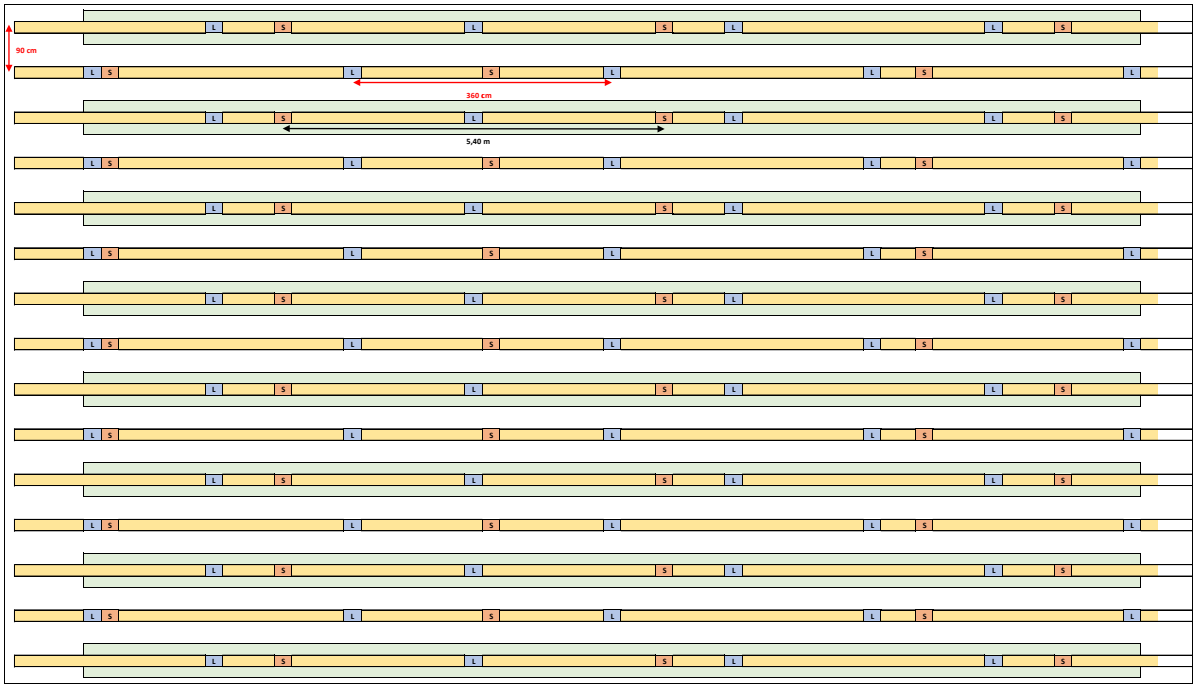
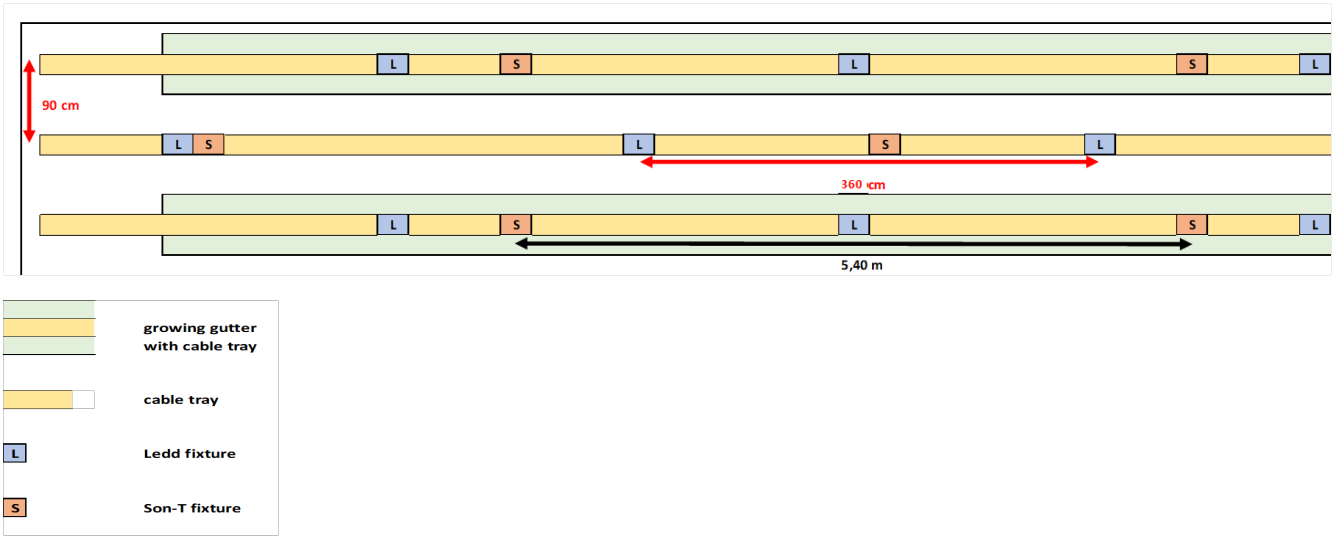
Upgrade to full LED system (TOP lightning)

Current situation

At the research station NIBIO Særheim, we have three adjacent greenhouse compartments built in 2018. All three compartments are equal. Each compartment has a ground floor of 12,6 x 16 meter and a height of 6 meter. In these compartments, we have installed hybrid top lightning with a maximum of 329 W/m2. Each compartment has 45 SON-T fixtures with one steering group and one steering group has 67 LED fixtures The connection is in a chessboard pattern, which has resulted in equal light level in the whole compartment both when lamps are switched on in one group and in both groups. The fixtures can be used for both 600 Watt and 750 Watt SON-T lamps.



Picture 1. Map over one compartment.



Picture 2. Detailed map

The current HPS (SON-T) fixtures are from Gavita (Gan Electronic 600W/750W 400 V) and are wired with a Wieland connecter (400V-/20 A, RST20/2S).

The existing LED fixtures have a light spectrum of 50% red and 50% white with a color temperature of 2300 ^{o}K and a wide scattering angle.

New situation

NIBIO wants to upgrade to a full LED system by changing the fixture group from SON-T to LED top lightning in all three compartments. The requirement of this installation is:

- Minimum light level of 250 micromole PAR light, measured 1,5 meters under the fixtures
- Equal light distribution, minimum of 90 % but over 95 % is preferable, both with only use off LED fixtures and in combination with SON-T fixtures in fixture group 2.
- The existing LED fixtures can not be moved, the new group of LED must be placed in between the existing LED fixtures
- Light spektrum: A light spectrum of 89% red, 6% green and 5% blue is required for tomato production.
- Live span of the fixtures (L90 and L80 value) and a 5-year operational guarantee is required.
- LED fixtures should be dimmable. We have an up-to-date Priva climate computer at the research station and wish to adjust light level to the outside light level.
- A signed service agreement including a sub-contractor if necessary. Describe terms and duration of the guaranty period and additional costs.
- It is preferable, but not necessary, to use the existing grid.
- Present expected delivery time after signing the contract. A delivery time before 1. May 2023 is requested.

The price must include all cost (fixtures, transport, and connection of the fixtures). A price per compartment is wanted.

Inspection

Inspection of the work area to be carried out at the request of the provider or their representative.

To book an appointment, please contact Henk Maessen: henk.maessen@nibio.no