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Lantmännen SW Seed Improves Quality of Oilseed Rape (Canola) Using Valoya LED Lights

Lantmännen SW Seed, an international seed company with its head office in Svalöv, Sweden, has been able to significantly improve the greenhouse cultivation of oilseed rape (Brassica napus) using Valoya LED lights. The light solution is a hybrid use of traditional High Pressure Sodium Lights (HPS) and LEDs together.

Oilseed rape is a very important crop and valued for its oil for food and fuel. The development of new oilseed rape varieties is driven by higher productivity demands and also by more specialized end products for example for biofuels production.

In the breeding process of new oilseed rape varieties, the young plants are cultivated, typically during the winter in greenhouses using supplementary lighting to improve or enable growth. Traditionally, HPS lamps have been used for the illumination. Plant quality has deteriorated during winter months due to the poor quality of the HPS light spectrum to plants. The poor quality of the oilseed rape plants appears as elongated hypocotyls. Elongated hypocotyls make transplantation of the plants into the field more difficult, causing damage to the plants and thus, compromising their survival through the breeding program. The plants should be compact, strong and have short hypocotyls. Plant quality can be partly improved by lowering greenhouse temperature, but this leads to a longer production time.

Lantmännen SW Seed has been working with Valoya lights both in Sweden and in Germany. The Lantmännen SW Seed team in Germany tested the effect of different light sources to improve the quality of the oilseed rape seedlings. They found that the use of Valoya LEDs together with the existing HPS lamps in the trial greenhouse improved plant quality to a level similar to the high quality of plants grown outdoors during the summer, i.e. strong, compact and with very short hypocotyls. Light intensity is not different compared with HPS alone and when both lamps are combined, therefore the positive growth effect is due to the spectrum of the Valoya LED lights.

Improving the quality of plants, without slowing down the production time is very valuable for seed companies, as development programs for new plant varieties are costly and can take up to 10 - 12 years. Each plant in the breeding program receives significant care and analysis during this time, which leads to a high cost. Thus, a strong plant equals high survival rates and thus, protection of the investment in it.

The oilseed rape seeds were sown on December 10th, 2012 and grown until January 7th, 2013 in the greenhouse at the temperature of 10 °C. When they matured to "6 leaf stage", they were placed into vernalization at 2-3 °C for a minimum of 6 weeks at low light intensity. The plants were then transplanted to the field in early March 2013.

Valoya



Using HPS as supplementary lighting grows weak plants with too long hypocotyls (left) whereas combining Valoya LEDs with HPS improved plants significantly to compact and strong plants (right)

About Lantmännen SW Seed

Lantmännen SW Seed is an international plant breeding and seed company. The core business is the development and marketing of new plant varieties and the production of seed. Cereals, oil seeds and forage grasses & legumes are the main crops. The most important markets are located within Central and Northern Europe. For more information, please visit www.swseed.com.

About Lantmännen

Lantmännen is one of the largest Groups in the food, machinery, energy and agriculture industries in the Nordic region. Lantmännen is owned by 33,500 Swedish farmers. It has more than 10,000 employees, operates in 19 countries and has a turnover of SEK 36 billion. Lantmännen operates throughout the entire food processing chain – from field to fork. For more information, please visit us at www.lantmannen.com and www.lantmannen.se.

About Valoya

Valoya is a provider of energy efficient LED grow lights for professional use. Valoya LED -lights have been developed using Valoya's proprietary LED technology and extensive plant photobiology research. Valoya's customer base includes numerous greenhouses and research institutions all over the world.

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