There is still no single commonly accepted classification of salads. They can be divided into two categories: leaf and head. Leaf salads are usually formed as a bush or rosette, which can be lying, raised or pointed up. Leaves in head salads form a dense or loose head.

In addition, salads can be divided into groups according to the taste sensations:

- crispy (Romaine salad (Iceberg salad)
- soft (Lettuce Lollo Rosso, young spinach)
- bitter (Frisée salad (curly chicory), Chicory (Endive), Radicchio)
- spicy and peppery (Rocket salad, Mizuna, Cress salad, mustard leaves).

There are two ways of growing a salad: in a soil, and using hydroponic systems. Both have something in common - this is the way to grow seedlings.

The quality of seeds is the basis of growing technology. Salads seeds are too small and not very easy to work with. For seeding, coating is used as a seed treatment, especially when using cassettes and mechanical seeding methods. With this treatment method, the similarity and energy of seeds approximates 100%, unlike un-coated. In addition, the same size and shape of the seeds allow the machine to place them evenly and, as a result, the plants will grow in comfortable conditions. Even manual sowing of such seeds is much nicer and more convenient.

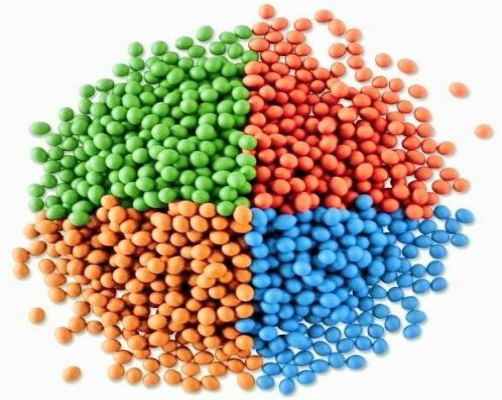

Fig. 1. Coated seeds

Using flow hydroponics method when cultivating salads has several cycles: substrate preparation, seeding and germination of seeds, growing seedlings in the seedling section, growing salads in the work area, product harvest.

Growing of seedlings.

The next and, undoubtedly, one of the most important elements of the growing technology is the seedling. To get a good result, you should pay attention to the peat, used for growing seedlings. Optimal acidity level would be pH 6-6,7.

A wide variety of shapes and sizes of cassettes for growing seedlings are used, the most popular are 144, 160 and 215 containers of pyramidal shape; it is also preferable that the cassette is made of hard plastic with skirting inside the container, that will prevent the root system from spiraling. When growing on hydroponics, sowing is carried out in cubes or special cups. Before filling the cassettes with peat, you must necessarily pour it onto a film, moisten and evenly mix it, and then fill cassettes with it. The sowing is carried out in a way so the seed is placed at a depth of 0.5 cm from the surface of the cassette. Next, moisten the cassettes with water (as much as they can take) with the help of mild irrigation, to evenly soak peat and improve the contact of the seed with it. This moment is especially important when using coated seeds for sowing, since the coating base is a mixture of special clays, that must be well moistened for successful germination of the seed. Further, the cassettes with seeds are placed in the germination chambers, where the temperature should be maintained at 18-22 ℃, it is recommended to keep the relative humidity of the air in the germination chamber at the level of 93-95%. The cassettes are kept in the germination chamber for 48 hours on average.

Fig. 2. Seedlings

After this, the cassettes with pots are set tightly to each other on the tables in the seedling compartment. Illuminated the plants around the clock for the first three days, then, for 18 hours. Intensity of illumination is 10,000 lux. Irrigation and feeding of plants are mechanized or manual, water with a nutrient solution pH 6.0-6.4 and EC is about 1.5 MS / cm. For optimal growth and development of salad, regular even irrigation of plants should be carried out. The water temperature should be within 22-24 ℃.

The air temperature in the seedling compartment is maintained within 18-20 ℃ in the afternoon and 16-17 ℃ at night, the temperature of the substrate should be 18-19 ℃, and the relative humidity of air - 75-80%.

Growing of salad.

For further cultivation, the prepared seedlings in pots are placed in the cultivation troughs in a staggered pattern into the working zone on the conveyor. An obligatory condition for planting seedlings in the cultivation troughs is the emergence of the root system from the pot and the presence of 2-4 true leaves. The electrical conductivity of the solution (EC) in the autumn-winter period should be 2.0-2.2 MS/cm, in the spring-summer period - 1.5-1.7 MS/cm, depending on the illumination and temperature. The reaction of the nutrient solution is maintained at pH 6.0-6.5. The optimum temperature regime for salad growth: day 20-22 ℃, night 16-18 ℃. It takes 30-45 days from shoots to harvesting.

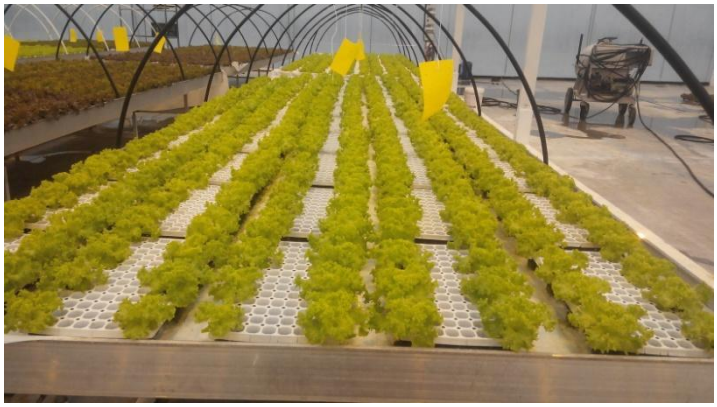

Fig. 3. Adult salad plant

AgroLED LED lamp - the decisive factor for increasing the yield of lettuce.

Light is an important condition that affects the growth rate of the lettuce and the yield in the greenhouse. Salad is a light-loving plant; with a lack of light, the leaves of the lettuce come out long, narrow and light, they are devoid of taste and contain no sugar and acids.

AgroLED LED lamps have a spectrum of light that is favorable for growth and development of lettuce; electricity consumption is significantly less than of other lamps. The main point of lighting is the efficient and uniform distribution of light between all plants.

The **AgroLED** lamp provides plants with the light of a special chromatic composition in the quality and quantity that is most conducive to the plant's achievement of photosynthesis.

For the process of photosynthesis, the power of illumination is not as important as the number of photons absorbed per unit time. For effective photosynthesis of salad plants this number should be at least

30 micromoles. In the **AgroLED** lamp, there are bright LEDs that give the plants required intensity of light along the entire length of the lamp, while also providing an even distribution of light, the same level and quality of it for each plant.

Red spectrum optimizes the production of chlorophyll and promotes faster germination. The blue spectrum affects photosynthesis, increases the leaf surface of the plant and improves the development of the root system.

Apart from photosynthesis, the light spectrum of **AgroLED** lamps also affects photomorphogenesis. Light interacts with phytochromes, cryptochromes and phototropins favorably affecting the yield of plants.

The use of **AgroLED** LED lamps helps to reduce the heat load on the lettuce, which allows them to be placed closer to the crops grown and evenly distribute the light inside the greenhouse.

In the greenhouse, along with the salad, your profit also grows.