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PROVISION OF HEATING OF GREENHOUSES AND THEIR DEVELOPMENT TRENDS

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Abstract
Scientific researches are being conducted to improve energy efficiency and reduce consumption of traditional energy resources by improving heat supply and ventilation systems of greenhouse complexes, using renewable energy sources and optimizing heat and technical parameters.

Keywords: Optimal, polyethylene chloride, research, accumulator, helioheating, ventilation, disposal.

Introduction

The main share of the cost of agricultural greenhouses, i.e., a huge amount of financial expenditure on thermal energy and electricity. Speaking about the history of greenhouses, they came to us from Ancient Rome. Of course, at the very beginning of their appearance, hotbeds and greenhouses had a completely different look. Over the years, they have improved. And for several centuries they have changed so much that it is difficult to imagine. It all started with hot ridges. On such soils lay a nutrient product, which, when heated, creates the effect of steam. But it wasn't enough. Often the plants died off. Plants imported from warm countries, in particular, had a great influence, while exotic flowers really required heat and light.

The first greenhouse is covered with slythe. Mica (a separate family of mountain minerals, including muscovite, lepidolite, phlogopite and biotite, Most often you can find muscovite - colorless or slightly white plates, semi-or completely transparent.)It passes well through the light, but not very strong.

The creation of such greenhouses was quite laborious. Roman engineers did not completely lose the technology of production of plates, glass and metal frames. After all, since the fall of the Roman Empire, a lot of water has flowed under the bridge.

1-rasm. Slyuda

The first greenhouses in Europe appeared already in the XIII century in Germany, in the town of Koln. Their construction belonged only to wealthy nobles, including royalty. At first, the construction of winter gardens and greenhouses was forbidden by the Holy Inquisition, but soon the process became more interesting, and winter gardens began to appear more and more in affluent German homes.

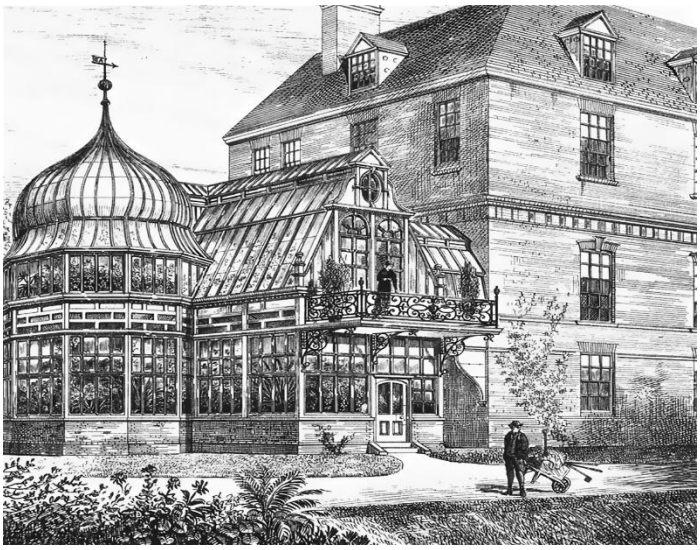

Figure 2. The home greenhouses of the nobility of the ancient Roman empire.

The first greenhouses appeared in Russia during the reign of Peter I, who brought this innovation from Europe. At the very beginning, winter gardens were built in the palaces of the nobility. Usually they grew in them unique flowers and exotic plants. Ordinary people did not need it, because turnips and peas grew very well in the soil. The construction of greenhouses in Russia in the XX century began at a rapid pace. Greenhouse farms began to be formed. One of the first was a vegetable farm in Cline County. There cucumbers are mainly grown there, and cucumber breeding is also practiced. In addition, the Klin greenhouses were heated with wood, and the heat was distributed through special pipes and wells. At that time, all

greenhouses were made only of glass, and there was only a slope of one roof. Plants in them are grown in several layers in special boxes. Nowadays, this is called "container gardening".

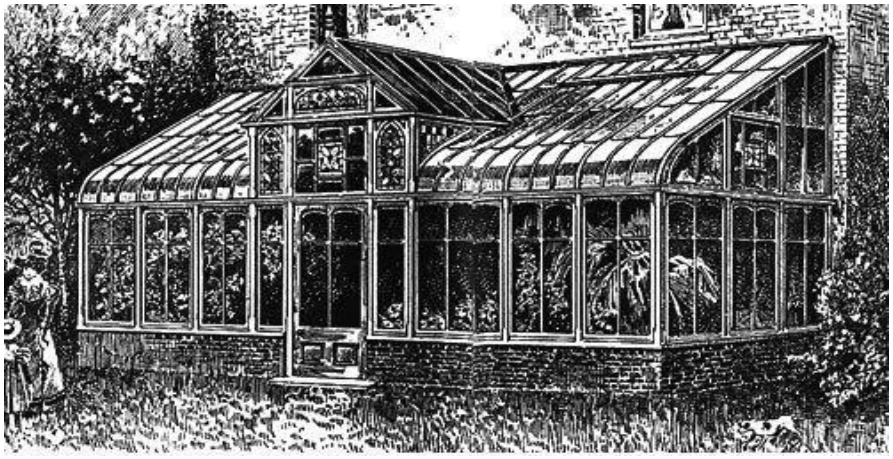

Figure 3. Greenhouses during the times of the ancient Russian Empire

Greenhouses began to develop very quickly. Containers with plants have been replaced by bulk soil. The shape of the greenhouses was very diverse. The greenhouses are divided into summer and winter greenhouses, which are heated by different systems (wood, coal, gas).
Until the 30s of the XX century, greenhouses were made only from glass, but by the 50s the material in the form of a polymer film for covering greenhouses appeared on the surface.

Figure 4. It is a greenhouse with wooden structure with transparent film.

The known and now emerged at the end of the 20th century, polycarbonate, which, in terms of its characteristics, significantly surpasses that of film. Cellular polycarbonate became significantly stronger and lasted longer, which became very popular in the construction of greenhouses.

Conclusion:

At the moment on individual plots you can find different designs of greenhouses and greenhouses. Most gardeners still prefer factory polycarbonate greenhouses, but some gardeners still prefer to make greenhouses from film material.

In general, I want to note that the use of greenhouses is typical only for northern regions with a cool, humid climate. Therefore, all productions of these structures are concentrated in certain regions of our country.

From my own experience I can say that it is better to use the greenhouse in the fall or at the end of winter. At the moment, there are huge discounts on the state side for greenhouses, up to 50%.

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