Fig. 1.

error of the objects within the array, due to finite pixel size, should be < 10% of the linearity specification. Figure 1 provides an illustration of two possible patterns which could be used to evaluate spatial linearity.

The phantom used for spatial linearity should have a minimum dimension (D) in the image plane of at least 60% of the largest possible image field-of-view. The thickness of the phantom should be at least twice the maximum slice thickness for single-slice measurements and two slice thicknesses, plus the image volume length for multislice measurements. Two possible phantom designs are (a) orthogonal grooves in an acrylic plate of (b) an orthogonal array of holes drilled in an acrylic plate.

Percent distortion is defined as

$$R = \max\left\{\frac{|L_i - L_д|}{L_д}\right\} \cdot 100\%$$

Percent distortions in the spatial linearity (when measured over a 25 cm or greater field-of-view) are generally considered acceptable if they are < 5%.

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THE HISTORY OF THE SEMI – PARASITE PLANT: MISTLETOE WHITE AS THE POTENTIAL THREAT TO THE PARK LANDSCAPES OF MINSK CITY

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The actuality of the selected topic is based on the study of the threat of mistletoe white to the tree plantation of the capital. During the research the following activities were carried out: we have found out the places of growth of mistletoe white in the vicinity of Minsk; we have learned all the ways of spreading white mistletoe; we have determined the effects of mistletoe white on the leaf blade growth rate; we have studied the cross sections of shoots that are infected with mistletoe white.

Keywords: mistletoe white, tree, semi-parasite, plant, research.

We have started the experiment with the theoretical analysis of the structure, features and activity of mistletoe white. Many of us have ever seen a plant in the form of fancy balls resembling bird nests. People ask a question what it is: a mutational change or a disease of a tree. In fact, mistletoe white is an evergreen shrub of a rounded shape settling on the branches of many deciduous trees more often than on the branches of coniferous ones. We were surprised to find out that this plant is a semi-parasite and a dioecious, strongly branched shrub, rounded (up to spherical) forms. The length of its shoots is 20–30 centimeters, but sometimes it can reach a meter. Its leaves are sessile, though they fall down in the autumn of the second year of their life. They bloom from March to April. Their pale yellow flowers are twisted tightly into a final inflorescence. The fruit in the shape of a berry is a false, single seed, spherical berry that ripens in December.

We used the following research methods in our work: survey, theoretical analysis, description, analysis of observations received in the result of the experiment, photography.

Carrying out the researches, we have conducted an experiment using the infusion of mistletoe white and its properties. We have found out that mistletoe white, on the one hand, is an undesirable plant that oppresses the development of trees, reducing their decorative properties, and on the other hand, this plant can be applied in medicine and agriculture, receiving significant profits. This is so – called money, "growing" on trees, but a final line between good and evil is very thin, it is also important to dispose properly of what Mother Nature has given us.

MONITORING OF HIDDEN WATER NETWORK LEAKS

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One of the diagnostic methods aimed at identifying an emergency site at an early stage is the monitoring of the water supply network. The complex of works carried out in production with the help of PhocusSMS monitoring systems is the detection of hidden leaks – water losses that do not show up by knocking to the surface or flooding of various underground utilities or structures, which determines the difficulty of finding them, while leading to significant water losses.

Keywords: PhocusSMS, Leak Detection Factor, Critical Noise Value.

Purpose: to improve the quality and reliability of water supply to consumers.

The task: to reduce the amount of damage on the city's water supply network, to reduce the cost of repair work.

Probable sources of latent leaks include network sections with a large accident rate or located on embankments, near a storm sewage system or a heating main, in soils with increased water permeability, that is, in places where water from a damaged water pipe does not surface.

The urgency of this work for the city water network is, firstly, in the search for just such an implicit (latent) leakage, when water consumption is sharply reduced for unclear reasons, and secondly, in cases of signs of leakage – the flooding of basement buildings with groundwater, sewage, water from the hot water supply network, as confirmation of the absence of water loss in the water supply[4].

In the production of water and sewage facilities monitoring is carried out using the leak detection system PhocusSMS. The principle of this system is based on the continuous collection of information on leaks in pipelines with the help of acoustic sensors-recorders (loggers). With leakage, the leaking water creates noises (beeps), which are fixed by the loggers. The noise of the leak is constant, but during the day, due to the high level of interference (traffic intensity, high water consumption, etc.), no audition is performed. Acoustic sensors - recorders are programmed so that noisy leaks are recorded at night.

PhocusSMS is an intelligent, acoustic recording system that records noise generated by a leak. The registrar tests the tube noise at intervals of 1 second during each of the three periods (periods) during the night, the time when the external noises are least. It performs a statistical analysis of each of the three periods in order to determine the Leak Detection Factor (LCF). If a leak is detected, the recorder sends an alarm with the sms message. The message contains information about the smallest measured noise value. This smallest noise is called the Critical Noise Value (CNV).

This value plays an important role and shows how close to the leak is the recorder, especially if several recorders have transmitted an alarm. In addition, the recorder sends an alarm signal if the money runs out or the battery is low. Using a visual indication, the recorder can provide information about the LCF and CNV directly at the installation site. This information refers to the last time of registration (the next night). Additionally, the registrar transmits a monthly report on the "state of on-board systems".

This report contains a graph of LCF and CNV values for the past month, which allows you to monitor the acoustic situation in the water distribution network. The monthly report protects SIM cards from deregistration on the network in cases where messages are not transmitted for a long period. The system consists of noise level recorders, a GSM modem and a computer with specialized software.

The PhocusSMS logger is a cylinder, approximately 135 mm high and 59 mm in diameter. At the base of the cylinder is a strong magnet, which makes it easy to mount the recorder on metal objects. On the top of the cylinder there is an optical window and two LEDs. Each registrar has an individual number [2].