

LOW TEMPERATURE TOLERANCE OF VARIETIES OF THE UNABI PLANT

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Abstract

The scientific paper conducted research on the organization and cultivation of unab plantations in the conditions of the Kashkadarya oasis. During the experiments, 5 varieties of unab, such as ta-yan-sizo, u-sin-hun, and the recently introduced varieties of mayabaizao, jixinzao, and zanhuangdazao from China, were found to be resistant to dry low temperatures. The degree of damage to the vegetative organs of plants aged 2-3 and 1-8 years at low temperatures was analyzed.

Keywords: Unab, variety, fruit, dry low temperature, term, condition, phase, annual and biennial shoots bud.

Introduction

When the regional geographical conditions of unab plants change, changes in several morphological signs are observed during their growth and development processes. When evaluating the growth and development of plants and their adaptive state during phenological observations, it is possible to determine the duration of their growth and development by comparing their changes over a certain period of time. Some low-fruiting and medium-yielding fruit trees have a slightly shorter fruit ripening and vegetation period in light soil conditions. The transition time of the phenological phases was the same in the unab varieties studied in the experiments, and it was observed that the growth and development of plants depended on the influence of the ecological environment during the initial vegetation period.

Research Results

When evaluating their resistance to work, consider several unfavorable factors that plants experience during the winter. plant organs are damaged due to the duration of low temperature, sudden change of air, duration and frequency of frosts, size of snow cover and other natural factors. The resistance of various organs of the plant to low temperatures is unique. In the conditions of the Kashkadarya oasis, it is possible to determine the resistance of different varieties of unab to dry and low temperatures in the winter season.

As mentioned above, it is a type of subtropical fruit crop. Therefore, it is necessary to pay attention to the complex effect of unfavorable medical factors in the cultivation of varieties and creation of artificial ecosystems. Studying the low temperature resistance of the Unabi plant in the regions with severe soil and climate conditions, and determining the area of its distribution, the low temperature resistance of the varieties was determined. In the central region of the



republic (Tashkent, Samarkand), it was mentioned that the plant branches were not damaged at a low temperature of $-30-32^{\circ}\text{C}$.

During the years of research, in 2021-2022, during the winter season, it was observed that the air temperature was at a low level of $-24-26^{\circ}\text{C}$ on certain days. In this process, it was observed that the one-year branches of our unabi varieties, which are being studied in the experiment, are not fully biologically ripe. Of course, like all fruit plants, the knabi plant shows that the branches grown in September are not fully ripe.

Unabi cultivars by age according to the degree of adaptation to low temperatures on the basis of Euclidean distances allows to identify short-resistant (stenobionts) and more resistant (euribionts) and to determine the optimal cultivation conditions and the level of ecological plasticity.

In the experiments, it was observed that three-year-old plant samples have a higher level of adaptation than ten-year-old ones. In the winter season of 2023, it was found that Ta-yang-zao (large-fruited variety) was damaged by frost. Small-fruited Mayabaizao variety was less affected by cold. Since the temperature was low in the winter season of 2023, it was observed that the beginning of the growth of the buds was recorded in May. This shows the good regenerative ability of dormant (spare) buds of unabi varieties.

Damage was observed in certain organs of Unabi varieties as a result of a sharp drop in temperature. In this damage levels of annual and perennial branches and buds of mainly 2-3-year-old and 7-8-year-old unabi varieties were determined by visual observations. In January 2023, there were times when the average temperature was $-32-34$ and even lower.

0.5 % of 2-3-year-old plants - 0.7% of one-year-old branches and 0.8% of shoots were damaged by frost. During our experiments, damage rate of perennial branches of 7-8-year-old Unabi plants was 0.2%, skeletal branches were damaged up to 0.4%, and shoots were damaged up to 0.6%. It was found that the general damage rate of perennial branches was very low (0.1-0.2%).

The experiments carried out in the soil-climatic conditions of the Kashkadarya oasis showed that the resistance of different varieties to low temperature increases depending on the age of the plant. If damage to certain organs (one-year branches, vegetative and generative shoots) of 2-3-year-old unabi trees was observed, when the plant is 8-10 years old, one-year branches and certain shoots should be removed from frost (-32°C) damage is observed (see Table 1).

As noted in the table, when the 2-3-year-old unabi varieties propagated from vegetative cuttings were analyzed for low temperature resistance, in the Ta-yang-zao variety perennial branches 0.7%, annual branches 0.9%, buds 0, Up to 10% damage was observed. When the 7-8-year-old variety of Ta-yang-zao was analyzed for low temperature resistance, it was found that 0.6% of perennial branches, 0.7% of one-year branches, and 0.8% of shoots were affected.



Table 1 2-3 and 7-8-year-old trees of Unabi varieties, one- and many-year-old branches and buds according to the degree of frost resistance (2023)

Varieties of Unabi	Frost resistance of unabi trees analysis of level %					
	2-3 year old trees			7-8 year old trees		
	many years branches	annual branches	buds	many years branches	annual branches	buds
Unabi cultivars propagated from vegetative cuttings (control)						
Ta-yang-zao	0.7	0.9	0.10	0.6	0.7	0.8
U-sin-hun	0.6	0.8	0.9	0.5	0.7	0.8
Mayabaizao	0.5	0.7	0.8	0.5	0.6	0.7
Jixinzao	0.6	0.7	0.9	0.5	0.6	0.7
Zanhuangdazao	0.7	0.8	0.10	0.6	0.7	0.8
Unabi varieties grown on Melkoplodn iy grafting						
Ta-yang-zao	0.5	0.7	0.8	0.3	0.5	0.6
U-sin-hun	0.4	0.6	0.7	0.2	0.4	0.5
Mayabaizao	0.3	0.5	0.6	0.2	0.4	0.5
Jixinzao	0.5	0.6	0.6	0.3	0.4	0.5
Zanhuangdazao	0.6	0.6	0.7	0.3	0.5	0.5

When analyzing the resistance to low temperature of the 2-3-year-old variety of Unabi, it was observed that 0.6% of perennial branches, 0.8% of annual branches, and 0.9% of shoots were damaged, 7-8 When analyzing the low temperature resistance of the unabi tree, it was found that 0.6% of multi-year branches, 0.8% of one-year branches, and 0.9% of shoots were damaged.

When the Mayabaizao 2-3-year-old variety of Unabi was analyzed for low temperature resistance, it was observed that perennial branches were damaged up to 0.5%, annual branches up to 0.7%, shoots up to 0.8%, while Unabi tree of 7-8 years old was less when temperature resistance was analyzed, it was found that perennial branches were damaged up to 0.5%, one-year branches up to 0.6%, shoots up to 0.7%.

it was observed that perennial branches were affected by 0.6%, annual branches by 0.7%, and shoots by 0.9%, while unabi trees aged 7-8 years were less when temperature resistance was analyzed, it was found that perennial branches were damaged up to 0.5%, one-year branches up to 0.6%, shoots up to 0.7%. When the Zanhuangdazao 2-3-year-old variety of unabi was analyzed for low temperature resistance, it was observed that perennial branches were affected by 0.7%, annual branches by 0.8%, and shoots by 0.10%, while the unabi tree aged 7-8 years had low during the analysis of temperature resistance, it was observed during our experiments that 0.6% of multi-year branches, 0.7% of one-year branches, and 0.8% of shoots were damaged.

it was observed that 0.5% of perennial branches, 0.8% of annual branches, and 0.8% of buds were damaged in the Ta-yang-zao variety. When analyzing the low temperature resistance of 7-8-year-old trees, it was found that 0.3% of perennial branches, 0.5% of one-year branches, and 0.6% of shoots were damaged. When analyzing the resistance to low temperature of the 2-3-year-old variety of Unabi, it was observed that 0.4% of perennial branches, 0.6% of annual branches, and 0.7% of shoots were damaged, 7-8 When analyzing the low temperature resistance of the



of unabi tree, it was found that 0.2% of perennial branches, 0.4% of one-year branches, and 0.5% of shoots were damaged. Perennial branches were affected by 0.3%, one-year branches by 0.5%, and shoots by 0.6%. When analyzing the low temperature resistance of 7-8-year-old unabi trees, perennial branches were affected by 0.2%, one-year branches 0.4%, shoots 0.5% were found to be affected. When analyzing the resistance to low temperature of the 2-3-year-old variety of Unabi Jixinzao, perennial branches 0.5%, one-year branches 0.6%, shoots up to 0.6% damage was observed, when analyzing the low temperature resistance of 7-8 year old unabi tree, it was found that perennial branches were damaged by 0.3%, one-year branches by 0.4%, shoots by 0.5%.

of unabi was analyzed for low temperature resistance, it was observed that perennial branches were damaged up to 0.6%, annual branches 0.6%, and shoots up to 0.7%, while unabi tree aged 7-8 years was low during the analysis of temperature resistance, it was observed during our experiments that 0.3% of multi-year branches, 0.5% of one-year branches, and 0.5% of shoots were damaged.

Conclusions

It should be noted that in our experiments, it was observed that the direct influence of the soil-climate conditions on the growth and development of trees in the cultivation of unabi in the soil and climate conditions of the Kashkadarya oasis is high. The temperature of 22-24 °C is the most necessary temperature for the flowering process of Unabi plant. Relative humidity of 40-45% is required for pollination of flowers. When the low temperature tolerance of unabi varieties was studied, damages were observed in certain organs of unabi varieties as a result of a sharp drop in temperature. In this it should be noted that damage levels of annual and perennial branches and buds of 2-3-year-old and 7-8-year-old unabi varieties were determined by visual observations.

REFERENCES

1. Жученко, А.А. Селекция растений на устойчивость к действию абиотических и биотических стрессоров / А.А. Жученко // Научное обеспечение устойчивого развития сельскохозяйственного производства в засушливых зонах России: сб. матер. науч. сессии. - М., 2000. - Ч. III. - С. 5-18.
2. Алиев, Х.А. Перспективы интродукции субтропических культур в новые агроэкологические условия / Х.А. Алиев, М.Д. Мукайлов, Б.С. Гасанбеков // Проблемы развития АПК региона. - 2011. - №4(8). - С. 11-12.
3. Загиров Н.Г., Ибрагимов Х.А., Мамерзаев Ш.С. Устойчивость субтропических культур к зимним повреждениям в Южном ДаГЭСтане // Сборник статей международной научно-практической конференции: «Основные проблемы, тенденции и перспективы устойчивого развития сельскохозяйственного производства». — Том 1. — Махачкала, 2006. — С. 228-229.

