ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 11| November 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

UDC 58

ATTITUDE OF INTRODUCENTS TO SOME ENVIRONMENTAL FACTORS AND ASSESSMENT OF THE DEGREE OF THEIR DECORATIVENESS

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ANNOTATION

The article deals with the attitude of introducers to some environmental factors and the assessment of the degree of their decorativeness. In the process of mastering introducers, the reaction of plants to unfavorable soil and climatic conditions is of great importance.

KEY WORDS: ***introduced species, soil, climate, factor, reaction, conditions, irrigation, agricultural technology.***

In the process of development of introducers, the reaction of plants to unfavorable soil and climatic conditions (lack of moisture, duration of dry periods, low winter and high summer temperatures, etc.) is of great importance [2, 3, 4, 6]. If factors such as dryness and degree of salinity of the soil, dryness of the air with the modern development of agricultural technology (the presence of artificial irrigation, soil washing, shading, spraying, etc.) are amenable to artificial regulation by man, then the limiting influence of the air temperature factor (both very low and and very high) to a decisive extent determines the degree of success of the introduction.

RELATION TO LOW AND HIGH SUMMER AIR TEMPERATURE

In the arid climate of Karakalpakstan, one of the main factors determining the success of the introduction of a particular plant species is its winter hardiness. The manifestation of a high degree of winter hardiness largely determines the suitability of this plant for its wide practical use in the area of introduction. According to the degree of winter hardiness of introduced species, there is a classification by A. Rehder [7], according to which the zones allocated by him are limited by the absolute minimum observed within different parts of the species range:

Table 1
Degrees of winter hardiness of introduced species

I zone - below …-50°C;	V zone - from …-10°C to …-5°C;
II zone - from …-50°C to …-35°C;	VI zone - from …-5°C to …+5°C;
III zone - from …-35°C to …-20°C;	VII zone - from …+5°C to…+10°C.
IV zone - from …-20°C to …-10°C;	

The studied species belong to four climatic zones, with the largest number of introduced species coming from zone IV (4 species).

The vegetation period of introduced species of the genus Acer is from 199 to 237 days, depending on the plant species and the weather conditions of the year. Observations have shown that with a long and warm autumn, shoots of almost all species of the genus Acer have time to mature.

For the entire observation period (2006-2008) winter 2005-2006. Boston was the coldest. In January 2006, in the second decade, the minimum was -26.6°C., in the third decade -21.6°C. In February, in the first and second decades, the minimum temperature was below -19°C. However, the minimum air temperature in winter did not reach the absolute minimum (-31°C). There were no mass damages of skeletal branches by low winter temperatures in introduced species.

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In February, the air temperature began to rise significantly. To assess the resistance of introduced plants to low winter temperatures, a scale developed in the GBS of the Academy of Sciences of the USSR was used [1].

When using this scale for assessing the degree of damage in plants by low winter temperatures, winter hardiness was determined by 7 indicators in a point expression:

Winter hardiness of one point - (the plant did not suffer from low temperatures).

Winter hardiness of two points - (no more than 50% of the length of annual shoots froze).

Winter hardiness of three points (frozen 50-100% of the length of annual shoots).

Winter hardiness of four points (biennial and older parts of the plant are frozen).

Winter hardiness of five points (frozen crown to the level of snow)

Winter hardiness of six points (the plants froze completely and did not recover).

When using this scale for assessing the degree of damage in *A. campestre* plants by low winter temperatures, the results of winter hardiness were determined as two points - (no more than 50% of the length of annual shoots were frozen). The rest of the species did not receive any damage.

In the arid conditions of Karakalpakstan, the second factor limiting the success of introduction is the high summer air temperature (+38 - +42°C in June-August) for introduced species living within zones I-IV according to A. Rehder.

To determine the success of the introduction of a particular species, taking into account the degree of influence of high summer temperature, a scale was used, in which, according to the nature of the damage received, 5 groups were distinguished according to the degree of relation to high summer air temperature [5]:

I - group - plants do not suffer from high summer temperatures - 20 points;

II - group - in the hot period, part of the leaf blades burns - 15 points.

III - group - leaves in the mass burn and fall off (summer leaf fall) - 10 points.

IV - group - plants are severely damaged by high air temperature, even with strong shading, and often fall out at juvenile age - 5 points.

V - group - plants are damaged by high summer temperatures and fall out already in the state of seedlings - 1 point.

The number of species by climatic zones and the degree of damage they receive are indicated in table 1.

As can be seen from the data in Table 1, 4 species (A. ginnala, A. campestre, A. tataricum, A. semenovii) belong to the first group in terms of resistance to high summer temperatures (20 points) and do not receive visible damage. Although the introduced species of the species of the genus Acer, whose ranges are located within zone IV, are species of a more southern origin, they are all mostly floodplain and live along the banks of rivers and streams; under conditions of relatively high humidity. At the same time, they show high adaptive qualities in Buston conditions.

Table 2
The number of species of the genus Acer according to the degree of relation to the high summer air temperature by zones

Climate zones	Total species	Group according to the degree of attitude to high air temperature (points)			
		I	II	III	IV
II	1			10	
III	1		15		
IV	4	20			
V	1		15		

A. pseudoplatanus and *A. saccharinum* were in the second group in terms of resistance to high air temperature (15 points). In these species, part of the leaf blades burns in the heat. At the same time, the ranges of these species differ significantly from each other. The range of A. saccharinum extends into Canada in the north, while in A. pseudoplatanus it extends far into the south of Europe.

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They are to some extent exposed to the negative effects of high summer temperatures. Among the introduced species, only for Acer negundo, the range, which is located within the II zone, is characterized by a biological feature: in the hot months (June, July) it has summer leaf fall, i.e. this species, reducing the evaporating surface, sheds part of the leaves that were previously stained into yellow. This species was included in the III group according to the degree of resistance to high summer temperatures (10 points).

In conclusion, it should be noted that, in general, the effect of high summer air temperature does not have a significant negative effect on the seasonal growth and development of the studied species.

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