REACTION OF SOME WALNUT GENOTYPES GROWN IN VÂLCEA AREA AT *GNOMONIA LEPTOSTYLA CES. ET DE NOT* PATHOGEN ATTACK

Simona Giura[1,2], Mihai Botu[1,2], Rodi Mitrea[1]
[1]University of Craiova, Faculty of Horticulture,
[2] University of Craiova, Research Fruit Growing Vâlcea

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ABSTRACT

The studies were conducted at the Research Fruit Growing the Station of Valcea, under the climatic conditions of the year 2015 and focused response of walnut cultivars and selections with different origins to the attack the of Gnomonia leptostyla Ces. et de Not factor causative of the disease called "brown staining of leaves" or "walnut anthracnose."

Field observations were carried out at moments of maximum vulnerability to the disease (June and September) and followed up on the attack on leaves and fruits per genotype under natural infection.

At the two moments of observation, it was noted the frequency (F%) and the intensity (I%) of the pathogen attack based on which a was the calculated degree of attack (GA%), the values thereof reflecting the reaction of the cultivars to the attack of the pathogen.

INTRODUCTION

Anthracnose is the most damaging and widespread disease of walnut in all areas of culture, a fact mentioned by Severin (2009) and Tomşa and Tomşa in (2003).

To underline the seriousness of the disease, Berry (1997) highlights that in case of strong attacks in July and August can cause premature defoliation of trees and the fruit falls. Also notes that the varieties from *Juglans regia*, even if the attack is strong, defoliation does not occur to the same degree as *Juglans californica* or *Juglans hindsii*.

Premature defoliation leads to drying and frost awareness of shoots and production impairment (Parvu, 2007).

The fungus resists the winter as mycelium resistance in the bark of branches and leaves as periteci in death (Mitrea and Necula, 2004). In the spring ascospori (multiplication of sexual spores) are released from periteci are circulated by wind and water drops, the primary cause infections that occur at temperatures between 15-20° C and high humidity**.**

The spread of the pathogen during vegetation is achieved mainly through conidium Sporulation begins at 16° C, conidium production of acervuli is favored by light, while humidity increases the risk of secondary infections. The incubation period in the case of secondary infections is between 7 to 17 days, while in the case of the key is 7-14 days (Eliade, 1990).

This paper presents the reaction of walnut genotypes grown at S.C.D.P. – Valcea the attack of anthracnose under the direct influence of climatic conditions in 2015.

The results show the practical importance in choosing genotypes for areas with conditions similar to those of the experiment.

MATERIAL AND METHOD

Deployment experience took place in a plantation how are 20 years and are planted at distances of 9 x 8m.

Material that was the basis for the study consisted of 26 genotypes of native and foreign origin walnut.

Observations were made under conditions of natural infection in the field and has followed the evolution of fungus attack by *Gnomonia leptostyla* Ces. et de Note, the leaves and fruit in two periods of maximum vulnerability (June and September).

They were analyzed every 200 leaves and 100 fruits per genotype in part, regardless of its origin.

The attack produced by *Gnomonia leptostyla* Ces. et de Note has been represented value Frequency (F%), intensity (I%) and degree of attack (GA%) according to the methodologies used in plant protection.

In order to understand how different genotypes response to pathogen attack, the data were presented to the origin of genotypes, body attack, and during the determination.

RESULTS AND DISSCUSION

Data analysis shown in Figure 1, show that in 2015, in terms of climate was a year less favorable emergence and evolution of *Gnomonia leptostyla* fungus attack.

This year the monthly average temperatures during the growing season have performed strongly amid small amounts of precipitation and low relative humidities air.

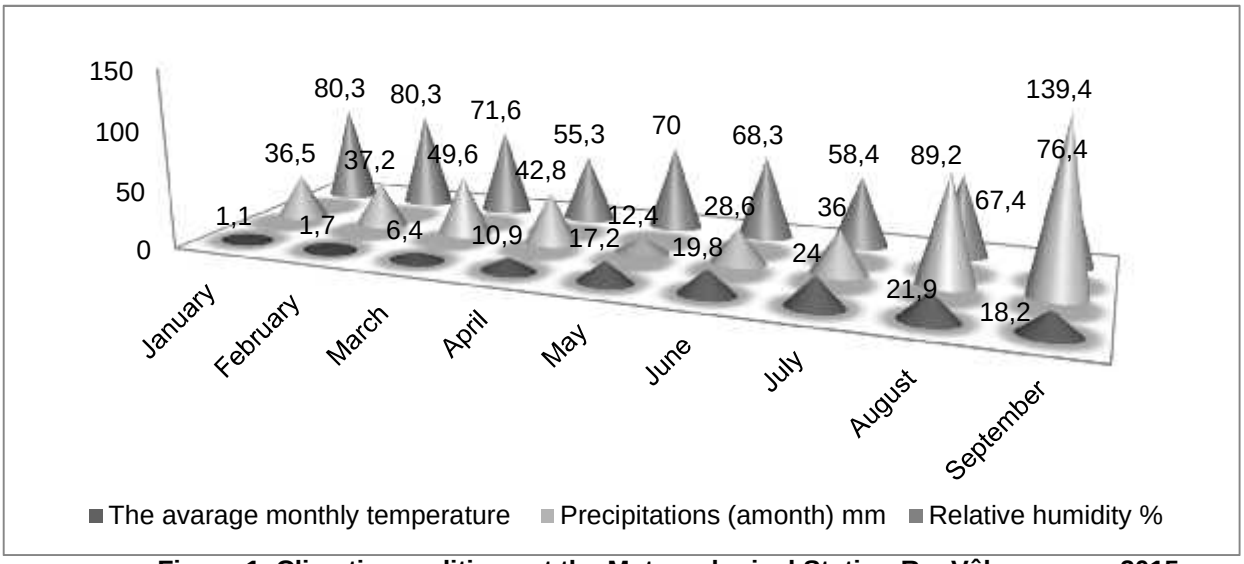

Figure 1. Climatic conditions at the Meteorological Station Rm.Vâlcea, year 2015

The influence of climatic factors in moments of maximum vulnerability for trees is shown by the incidence of attacks leaves and fruit at the 26 genotypes of walnut, the two moments of determination (June and September).

In 2015, environmental conditions have become favorable achievement of primary infection in May, so in June of anthracnose attacks on leaves and fruits showed different values depending on the genotype.

Autochthonous genotypes (Figure 2), the attack on the leaves recorded frequency values between 2.5% at Valmit and Valcor to 15.2% at HC O3 genotype. Regarding the intensity of the attack, he recorded values between 0.64% at Valrex to 6.5% at HC O2.

As a result, the HC O3 genotype was calculated the higher the degree of attack (0.86%) and the lowest 0.01% was at Valrex.

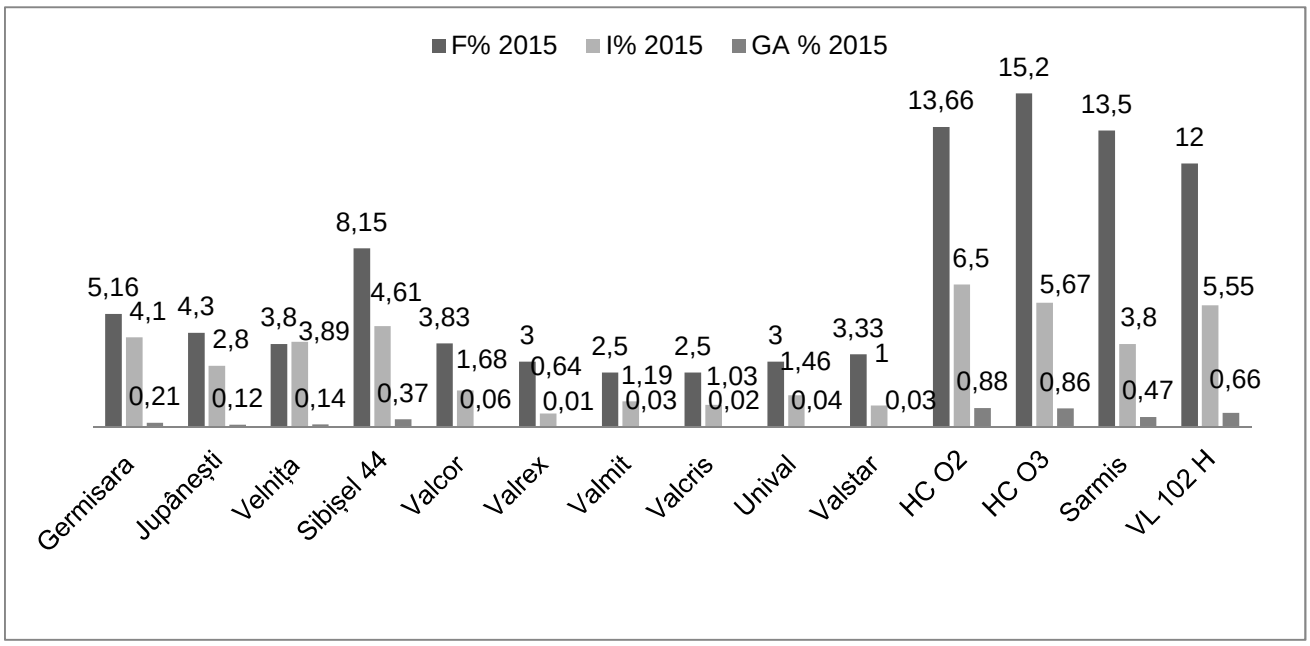

Figure 2. The behavior of autochthonous walnut cultivars and selections attack on the leaves of bean product (Gnomonia leptostyla), under the S.C.D.P - Valcea in June, 2015

Foreign genotypes in June the degree of attack on the leaves of registered values ranging from 0.18% at Franquette to 0.93% at Pedro, while selections *J. mandshurica* and *J. sieboldiana* attack was absent (Figure 3) .

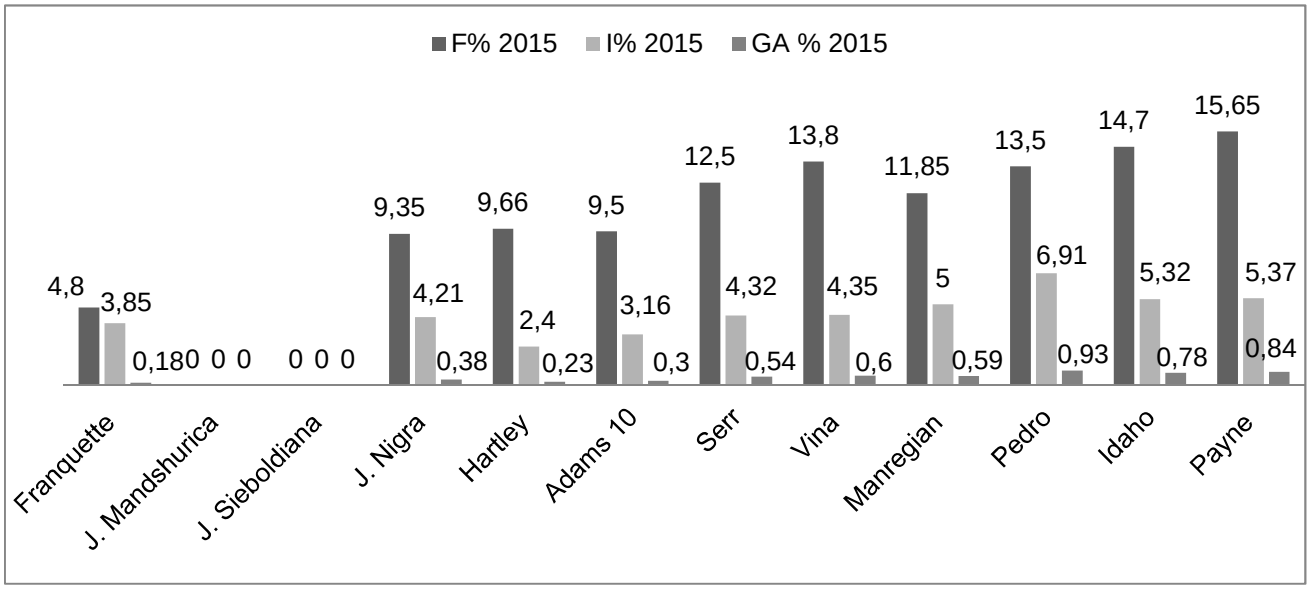

Figure 3. The behavior of foreigan walnut cultivars and selections attack on the leaves of bean product (Gnomonia leptostyla), under the S.C.D.P - Valcea in June, 2015

It appears that at this time, the attack leaves foreign varieties and selections is slightly higher than domestic ones.

Generally low values of the attack on the leaves of a low data rate (F%) and intensity (I%) under the direct influence of environmental conditions, regardless of genotype.

With regard to the attack on fruit in June, varieties and selections autochthonous were recorded values of frequency (F%) slightly higher and slightly close the selection HC

O2, HC O3, VL 102 H and variety Sarmis, and the highest values of intensity at VL 102 H and Sibişel 44 (Figure 4).

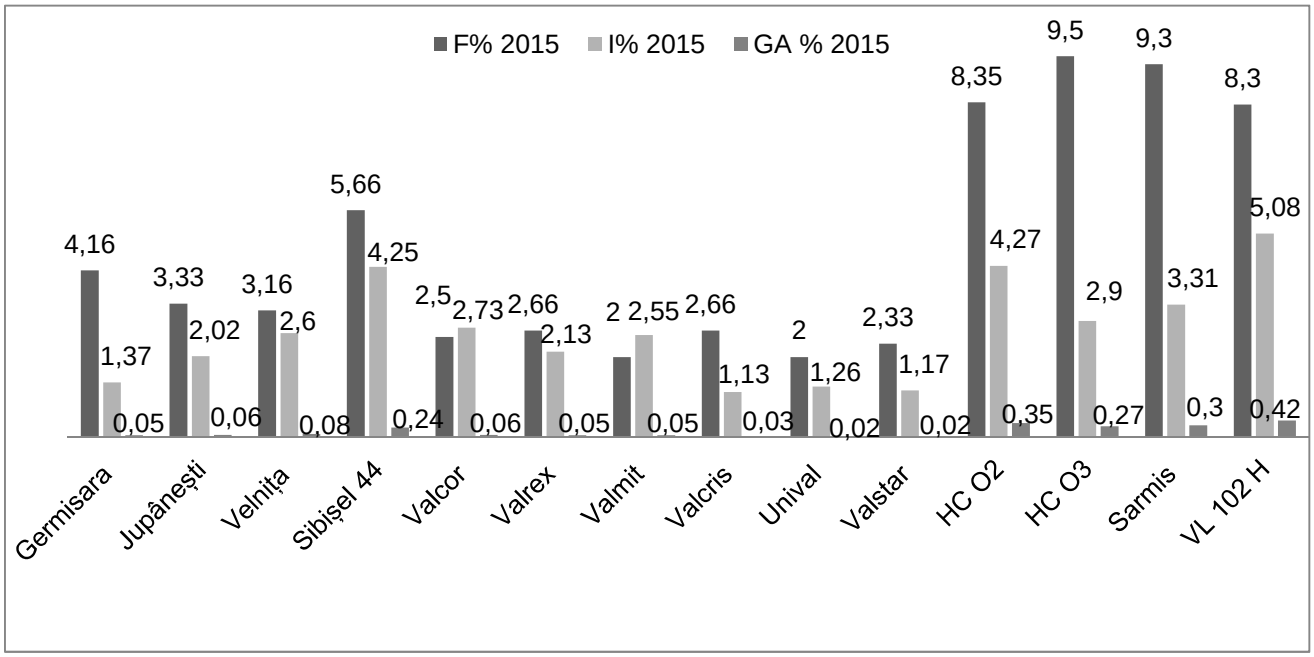

Figure 4. The behavior of autochthonous walnut cultivars and selections to attack the fruit produced by anthracnose (Gnomon leptostyla), under the S.C.D.P - Valcea in June, 2015

At the same time determining attack of anthracnose on fruit varieties and selections foreign recorded a maximum calculated the attack (0.34%) Manregian variety, variety in attack frequency and intensity values were similar (F = 6.16% I 5.62%), while genotypes with greater frequency appeals intensity values were lower, leading to lower degrees of attack calculated (Figure 5).

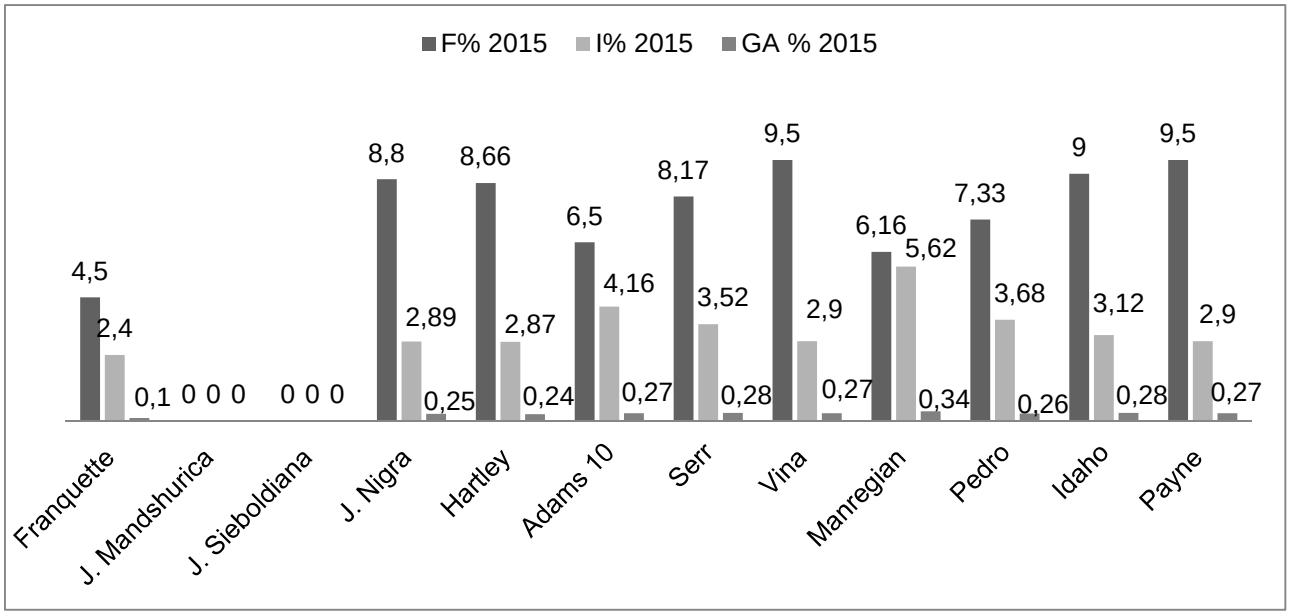

Figure 5. The behavior of some foreign varieties and selections of walnut attack on fruit bean product (Gnomonia leptostyla), under the S.C.D.P - Valcea in June, 2015

The climatic conditions of the summer months were not favorable evolution of pathogen *Gnomonia leptostyla,* because in this period were not met conditions favorable

to sporulation of the fungus, which is reflected in low levels of degrees of attack calculated for both leaves and fruit in September month.

Autochthonous varieties and selection, frequency of attacks leaves in september increased slightly compared with june, leading to a maximum of 16% at HC O2 selection (Figure 6).

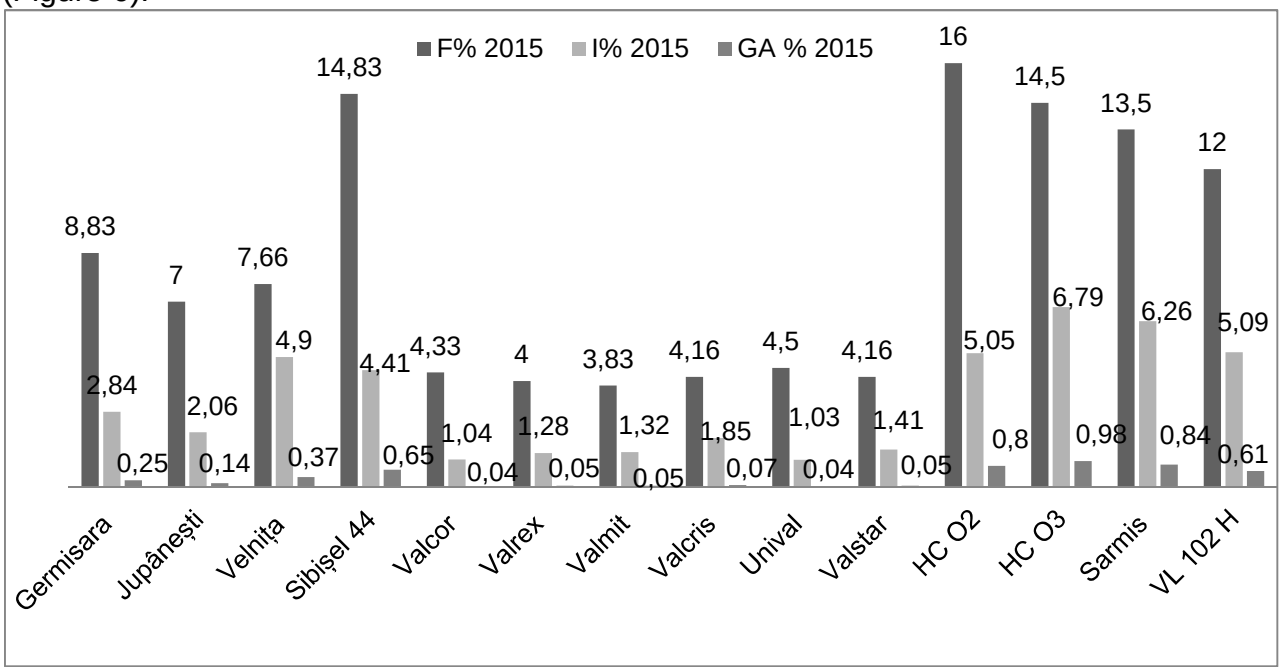

Figure 6. The behavior of autochthonous walnut cultivars and selections attack on the leaves of bean product (Gnomonia leptostyla), under the S.C.D.P - Valcea in September, 2015

Foreign cultivars and selections (Figure 7) attack on the leaves was scored by calculated values of 1.0% in the selection and variety Idaho and *J. nigra* and up to 2.10% to Payne variety, variety of lateral fruiting.

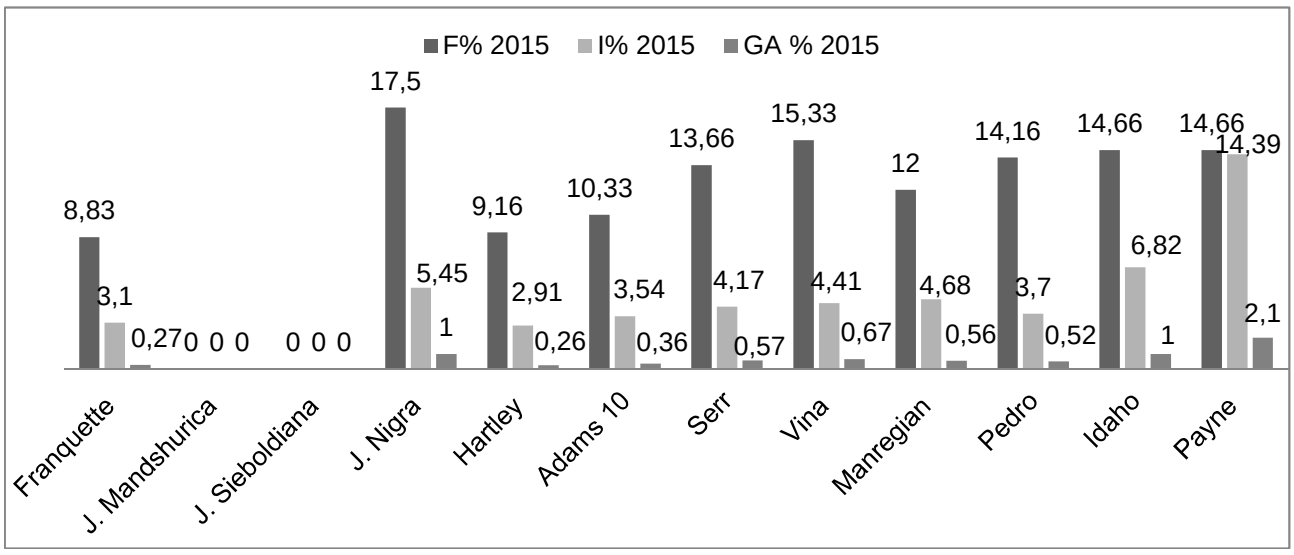

Figure 7. The behavior of some foreign varieties and selections of walnut attack on leaves bean product (Gnomonia leptostyla), under the S.C.D.P - Valcea in September, 2015

Analysis of the data in figures 8 and 9, shows that the attack on fruit in September, regardless of the origin of genotype was almost stopped. Attack frequency (F%) at autochthonous genotypes (figure 8) had values between 3.65% Unival variety, to 10.00%

at HC O2 selection, and Sarmis variety, variety with terminal fruition. Attack intensity (I%) was between 1.30% at Valmit variety to 9.72% at HC O2 selection.

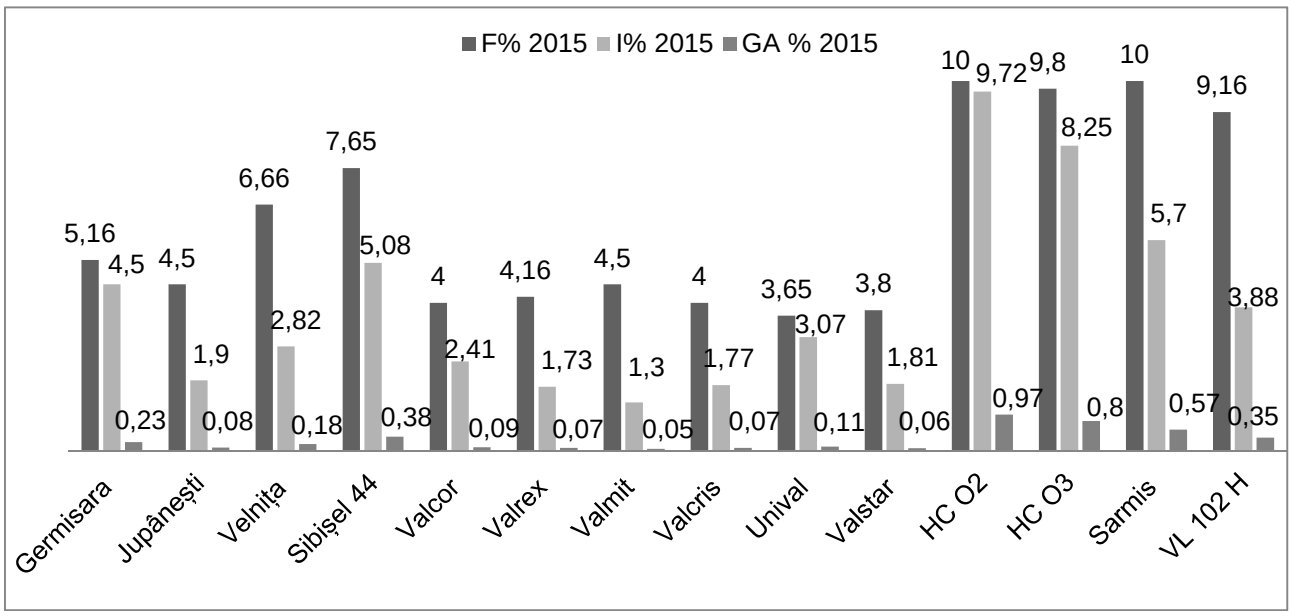

Figure 8. The behavior of autochthonous walnut cultivars and selections to attack the fruit produced by anthracnose (Gnomonia leptostyla), under the S.C.D.P - Valcea in September, 2015

On foreigan genotypes, we found the same trend of stopping the attack, the attack values calculated at between 0.0% fruit selections *J. mandshurica* and *J. sieboldiana* and 0.66% Payne varieties, fruiting variety with side (Figure 9).

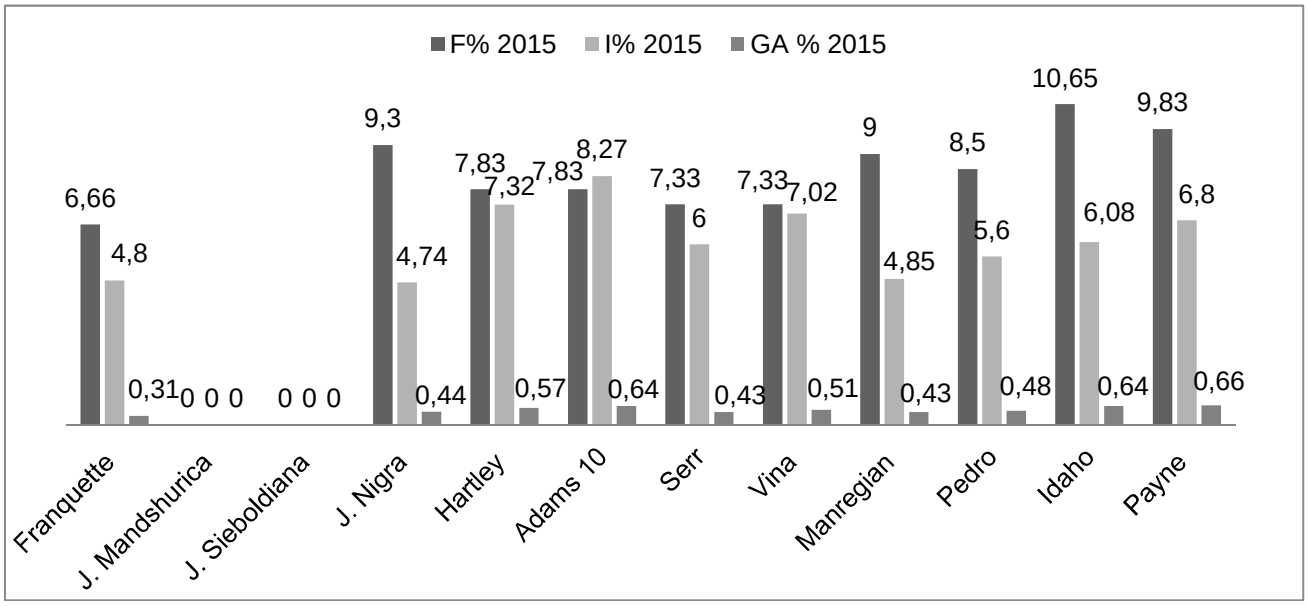

Figure 9. The behavior of some foreign varieties and selections of walnut attack on fruit bean produced by (Gnomonia leptostyla), under the S.C.D.P - Valcea in September, 2015

Comparing the response of walnut genotypes studied at *Gnomonia leptostyla* fungus attack in unfavorable environmental conditions pathogen evolution between domestic and foreign varieties and selections were established significant differences, but the Romanian favorable.

CONCLUSIONS

Climatic data of the year 2015 recorded S.C.D.P., Valcea, did not favor the development of fungus attack *Gnomonia leptostyla Ces. et de Not*., responsible for walnut anthracnose, one of the most serious diseases of walnut.

Genotypes were assessed visually analyzed as easily tolerant fungi attack *Gnomonia leptostyla Ces. et de Not*., irrespective of the time of fruition and analyzed.

Under the conditions set, best behaved and Valcea Valrex autochthonous varieties, both with the type of terminal fructification.

The values of the attack (GA%), foreign genotypes were slightly higher than domestic ones most susceptible varieties being Payne, Adams 10 and Hartley.

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