

# ANNUAL PLANTS INCREASES IN THE CLIMATIC CONDITIONS OF THE YEAR 2012

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## **Abstract**

The present paper presents some aspects regarding the influence of climatic conditions on annual increases in some species. The goal for the achievement of the aim pursued was the determination of the length of the annual increases in the climatic conditions of the year 2012.

Key words: ornamental trees, annual growth, climatic conditions.

## **1. INTRODUCTION**

To the plant life being most closely with climate variation, dependency so that the appreciation of the area's climate and taken into study are required for the determination of annual increases in plant life. Crop year 2012 can be characterized as a year with relevant climatic peculiarities which has negatively impacted the annual increases. Knowing eco-physiological elements are of particular interest for understanding the relationship between climatic factors – in order to increase production and achieve a viable mathematical model, models that have primarily a dual purpose: to highlight the environmental requirements of the trees studied ecosystems and allow estimation of the influence of climatic variation on the growth of trees.

In terms of temperature factor on the growth of trees, one can distinguish three situations: a minimum, optimum and maximum. Under or over a certain temperature-ceiling (ceiling values for minimum and maximum are variables, depending on the species, age and physiological state of the tree), the increase is no longer produces. The optimal growth occurs with higher intensity or lower, depending on the temperature variation (and other ecological factors) within that area. Light and temperature affect the growth of the trees. Thus, the intensity increases photosynthesis process, depending on the intensity of the light to its values of 30-40 thousand Lux, after which remains roughly constant. Soil moisture is in close dependence of the amount of rainfall. The two main ways through which water scarcity affects the process of photosynthesis, namely:-the effect of scarcity of water indirectly upon the closure of stomata, which reduces carbon dioxide in the penetration of the leaf and the direct effect of water deficiency on the biochemical reactions involved in photosynthesis.

## **2. MATERIAL AND METHOD**

The studies were conducted in 2012 given as 19 species of conifers. Measurements were performed in the first decade of the month of November, when he stopped the growth in length of the stems. These were done on the branches at the top, middle and bottom and then averaging per tree increases.

## **3. RESULTS AND DISCUSSION**

From the thermal point of view the year 2012 (Table 1) was a dry year, having an average annual temperature of 10,37 ° C a minimum temperature of 24.3 ° C recorded in February and a maximum of 41.3 ° C in august 2012.

The lowest average temperature was recorded in January of -2.7 ° C the highest average temperature is in July of 25.3 ° C. In terms of rainfall year 2012 is characterized with notation "very dry", with a

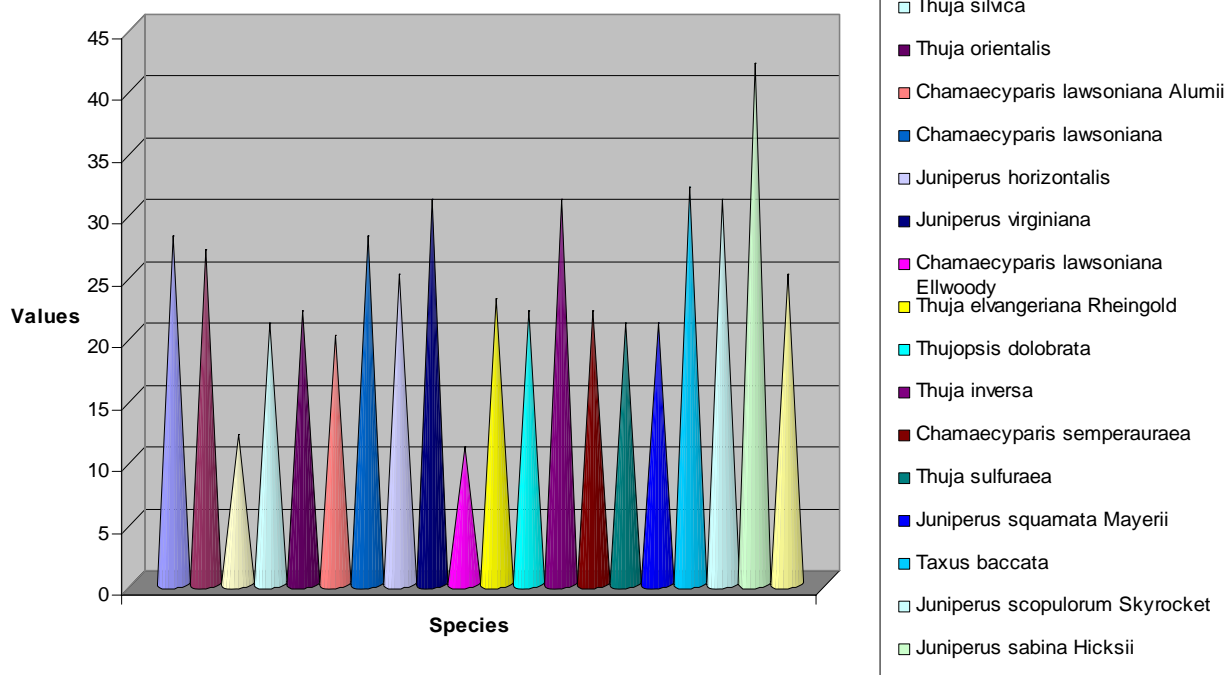
volume of rainfall averages approximately 31,14 mm. lowest Amount of precipitation fell in November by 3,0 mm, and the highest amount of precipitation fell in may by 84,2 mm. The average annual humidity registered was 74,66 %, humidity, the highest was recorded in December of 88.9%, lowest moisture was in July of 52.0 %.

**Table 1. Characterization of the agricultural year 2012 climate**

Moon	Temperature °C			Precip. mm	Umidit. %
	Medium	Minimum	Maximum		
<b>January</b>	-2,7	-18,3	11,9	8,9	81,0
<b>February</b>	-9,2	-24,3	8,4	18,2	74,0
<b>March</b>	4,1	-11,0	21,7	19,6	64,0
<b>April</b>	12,7	-1,4	30,9	62,0	64,0
<b>May</b>	17,3	5,8	31,3	84,2	69,0
<b>June</b>	21,2	10,7	37,0	32,0	62,0
<b>July</b>	25,3	12,8	38,5	24,8	52,0
<b>August</b>	22,3	8,6	41,3	22,4	56,0
<b>September</b>	18,2	7,9	31,4	53,0	62,3
<b>October</b>	11,3	-0,6	27,7	41,4	80,4
<b>November</b>	6,34	2,7	9,43	3,0	86,4
<b>December</b>	-2,35	-7,21	-1,25	4,22	88,9
<b>Average</b>	-	-	-	31,14	74,66

For interpretation of results obtained from measurements made from coniferous trees, the data obtained were statistically processed by variance analysis method. As a result of statistical calculations (table 2) it was found that the highest annual average increases were recorded from the *Juniperus sabina Hicksii* 42 cm, with a difference-growth species increases average girl of 17 cm, with a very significant meaning. The smallest average increases in 2012 was highlighted at the species *Juniperus pfitzeriana Auraea* 27 cm, with a difference of average increases of 2 cm, the significance of a positive semnificativ.la *Taxus baccata* average length of annual growth was 32 cm difference in growth is 7 cm, *Juniperus virginiana*, *Thuja*, *Juniperus scopulorum reverse Skyrocket* average length increases for each species was 31 cm and the difference increases-a species being 6 cm, all three species with a meaning of "very significant". *Chamaecyparis lawsoniana Blue Pyramidal* and *Chamaecyparis lawsoniana* length increases the annual average was 28 cm, with a difference of growth of average of 3 cm, with a significant, positive significance. The species *Juniperus pfitzeriana Auraea* average length of annual growth was 27 cm, and the mean difference of 2 cm is increases, *Juniperus horizontalis* average length of annual growth was 25 cm, and the difference increases of 0 cm, with a meaning \"insignificant\". The *Thuja elvangeriana Rheingold* annual growth average length was 23 cm, and the difference is growth -2 cm with negative significance insignificant.

**Average length of annual increases in the climatic conditions of the year 2012**



**Figure 1. The annual increases in the climatic conditions of the year 2012**

**Table 2. The annual increases in the climatic conditions of the year 2012 – statistic interpretation**

No crt.	Species	The average length of annual increases (cm)	Statistical calculation				The meaning of the
			%	The difference compared to the average		Increases\ produced Difference (cm)	
				+	-		
1.	<i>Juniperus sabina Hicksii</i>	42	14,28	17	-	17	Very significant
2.	<i>Taxus baccata</i>	32	18,75	7	-	7	Very significant
3.	<i>Juniperus virginiana</i>	31	19,35	6	-	6	Very significant
4.	<i>Thuja inversa</i>	31	19,35	6	-	6	Very significant
5.	<i>Juniperus scopulorum Skyrocket</i>	31	19,35	6	-	6	Very significant
6.	<i>Chamaecyparis lawsoniana Blue Piramidal</i>	28	21,42	3	-	3	Significantly positive
7.	<i>Chamaecyparis lawsoniana</i>	28	21,42	3	-	3	Significantly positive
8.	<i>Juniperus pfitzeriana Auraea</i>	27	22,22	2	-	2	Significantly positive
9.	<i>Juniperus horizontalis</i>	25	24,00	-	-	0	Insignificant
	<b>Average</b>	<b>25</b>	<b>26.7</b>	<b>6,2</b>	<b>5,5</b>	-	-
10	<i>Thuja elvangeriana Rheingold</i>	23	26.08	-	2	-2	Insignificant negative
11	<i>Thuja orientalis</i>	22	27,27	-	3	-3	Insignificant negative
12	<i>Thujopsis dolobrata</i>	22	27,27	-	3	-3	Insignificant negative

13	<i>Chamaecyparis semperauraea</i>	22	27,27	-	3	-3	Insignificant negative
14	<i>Thuja silvica</i>	21	28,57	-	4	-4	Insignificant negative
15	<i>Thuja sulfuraea</i>	21	28,57	-	4	-4	Insignificant negative
16	<i>Juniperus squamata Mayerii</i>	21	28,57	-	4	-4	Insignificant negative
17	<i>Chamaecyparis lawsoniana Alumii</i>	20	30,00	-	5	-5	Insignificant negative
18	<i>Juniperus picta</i>	12	50,00	-	13	-13	Insignificant negative
19	<i>Chamaecyparis lawsoniana Ellwoody</i>	11	54,54	-	14	-14	Insignificant negative

DL 5% = 2,36; 9,61%; DL 1% = 3,12; 12,70%; DL 0,1% = 4,04; 1,42%

#### 4. CONCLUSIONS

1. Lack of water diminishes, reducing annual photosynthesis growth, transport of substances in the plant and decreases swelling of the plant cell.
2. In 2012 may be obligate to characterize as being a very dry year, the deficit of 3,0 mm.
3. Of the 19 species of coniferous trees taken into study were noted as having the highest annual increases in length of *Juniperus sabina Hicksii* and *Juniperus horizontalis* having regard to the average length of annual increases equal to the average.
4. The lowest increases were recorded from *Chamaecyparis lawsoniana*, *Juniperus Ellwoody* by 12 cm and 11 cm.

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