

# STUDY OF SOME LETTUCE (*LACTUCA SATIVA* L.) CULTIVARS IN COVERED CROP CONDITIONS

## STUDIUL UNOR CULTIVARURI DE SALATĂ (*LACTUCA SATIVA* L.) ÎN CULTURĂ PROTEJATĂ

VARGA J., APAHIDEAN AL. S., Enikő LACZI

University of Agricultural Sciences and Veterinary Medicine  
Cluj-Napoca, Romania

**Abstract.** *Experience was conducted in the unheated greenhouse in the endowment of Vegetable Growing Department at USAMV Cluj. Were studied eight cultivars of lettuce (Allegiance, Gentiliana, Lobi, Clarion, Crufia, Sprinter, Roderick, Limax) that were planted in spring (March-April). The research goal was to determine which of cultivars have a better behaviour in the specific Cluj area, which is less favorable for the early crops of vegetables. The average plant weight at harvest was situated between 353.0 and 474.0 g achieved by Lobi and Limax. The average yield at harvest was 46 t/ha, the highest recorded value was obtained by Limax, 54,77 t/ha.*

**Key words:** garden salad, cultivar, protected culture

**Rezumat.** *Experiența s-a realizat în cadrul USAMV Cluj, în sera - solar aflată în dotarea catedrei de Legumicultură. S-au studiat opt cultivare de salată (Allegiance, Gentiliana, Lobi, Clarion, Crufia, Sprinter, Roderick, Limax) care au fost plantate primăvara (martie-aprilie). Scopul cercetărilor a fost de a determina care cultivare s-au comportat mai bine în condițiile climatice specifice de la Cluj, mai puțin favorabile pentru culturile timpurii de legume. Greutatea medie a plantelor la recoltare a fost cuprinsă între 353.0 și 474.0 g, înregistrată la Lobi și Limax. Producția medie a fost de 46 t/ha, cea mai mare valoare înregistrată fiind la Limax, 54,77 t/ha.*

**Cuvinte cheie:** salată, cultivar, cultură protejată

## INTRODUCTION

Lettuce is a cultivated plant and one of the first vegetables of spring, rich in vitamins and minerals. Has been grown from antiquity and appreciated due to therapeutic and emollient properties (J. Valnet, 1986). Lettuce is the most consumed vegetable, worldwide is widespread in the culture of economically developed countries. In our country is grown in all areas, at spring and autumn in fields, and during winter in greenhouses.

Lettuce heads and leaves contain 94 % to 95 % water, 1.3 to 1.6 gram proteins, vitamins like B<sub>1</sub>, B<sub>2</sub> (8 to 25 mg), P, E, carotene (1 to 3 mg) and minerals: potassium 260 mg, iron 1.2 to 1.7 mg, calcium, phosphorus 40 mg, magnesium 25 mg per 100 gram reported fresh product (Stan N. et al., 2003, Apahidean Al.S., Maria Apahidean, 2004, Indrea D. et al, 2009).

Since lettuce had an impressive number of varieties, is necessary to study their comparative cultures to see which performs better under certain conditions of this region.

## MATERIAL AND METHOD

The experience took place in the unheated greenhouse in the endowment of Vegetable Growing Department at University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca in the spring culture.

Were studied eight varieties of lettuce. The seeds were sown in 02.09.2009 into nutrient cubes, and the outpicking was performed at 02.25.2009. The planting was done on 03.23.2009 in three repetitions, with a density of 115.000 plants/ha. After planting were applied ordinary maintenance, specific for protected lettuce crops.

The studied factor is the cultivar, with eight graduations.

a<sub>1</sub> = Allegiance

a<sub>5</sub> = Crufia

a<sub>2</sub> = Gentilina

a<sub>6</sub> = Sprinter

a<sub>3</sub> = Lobi

a<sub>7</sub> = Roderick

a<sub>4</sub> = Clarion

a<sub>8</sub> = Limax

During the growing season, biometric measurements were conducted to determine the ability to increase the number of leaves in rosette, leaves rosette diameter, plant height and plant weight.

## RESULTS AND DISCUSSIONS

From observation on plant growth shows that plant height varies from one variety to another, the values being lower at Roderick (16.8 cm) and greatest height were 34.4 cm at the Crufia variety.

The diameter of leaves rosette showed similar values, which is between 30.1 cm and 33.0 cm. The average number of leaves/plant ranged from 18.1 to 33.6 at varieties Lobi and Roderick.

The average plant weight at harvest was over 340 g. the maximum weight was registered at Limax.

Table 1

Development of lettuce plants

Variant	Plant height (cm)	Leaves rosette diameter (cm)	Average number of leaves/plant	Average weight of plants(g)
Allegiance	18.8	32.0	30.3	393.0
Gentilina	25.2	31.0	22.2	347.8
Lobi	20.4	30.6	18.1	353.0
Clarion	20.6	31.7	23.7	403.2
Crufia	34.4	31.1	24.5	405.0
Sprinter	21.6	32.6	30.0	437.4
Roderick	16.8	30.1	33.6	387.8
Limax	22.8	33.0	32.1	474.0

Experimental production in culture was calculated to ha by reporting areas. Production data were interpreted statistically by analysis of variance and are presented in table 2 and 3.

Table 2

**The influence of cultivar on production compared with the control  
Allegiance**

Variant	Production		Diference compared with the control t/ha	Significance of difference
	t/ha	%		
Allegiance	45.41	100.0	0.00	-
Gentilina	38.19	84.1	-7.22	-
Lobi	40.78	89.8	-4.63	-
Clarion	46.74	102.9	1.33	-
Crufia	46.80	103.1	1.39	-
Sprinter	50.55	111.3	5.14	-
Roderick	44.81	98.7	0.60	-
Limax	54.77	120.6	9.36	**

LSD 5%

6.25 t/ha

LSD 1%

8.67 t/ha

LSD 0.1%

12.04 t/ha

Table 3

**The influence of cultivar on production compared with the average of  
experience**

Variant	Production		Diference compared with the control t/ha	Significance of difference
	t/ha	%		
Allegiance	45.41	98.7	0.59	-
Gentilina	38.19	83.0	-7.81	-
Lobi	40.78	88.6	-5.22	-
Clarion	46.74	101.6	0.74	-
Crufia	46.80	101.7	0.80	-
Sprinter	50.55	109.8	4.54	-
Roderick	44.81	97.4	-1.19	-
Limax	54.77	119.0	8.77	**
Average	46.00	100.0	0.00	-

LSD 5%

5.15 t/ha

LSD 1%

7.13 t/ha

LSD 0.1%

9.91 t/ha

The data presented in table 2 shows that compared with the control (considered Allegiance variety) that has achieved production of 45.41 t/ha, varieties like Clarion, Crufia, Sprinter and Limax had recorded production increases from 2.9 to 20.6 %. The largest production of 54.72 t/ha made Limax variety, the difference in production from the control being separately significant.

Compared with the average of experience (table 3) it appears that the varieties Clarion, Crufia, Sprinter and Limax have achieved higher output with 1.6 % to 19.0 %. Variety Limax made a difference in production of 8.77 t/ha, distinct significantly.

## CONCLUSIONS

1. The studied varieties showed different levels of height, leaves rosette diameter, number of leaves/plant, the plants average weight.
2. The average weight of plants was recorded by Limax variety, 474.0 g.
3. The average yield/ha ranged between 38.19 t/ha and 54.77 t/ha.
4. Sprinter and Limax variety achieved a production over 50 t/ha, which recommend them for expansion in protected culture, for specific climatic conditions of Plateau of Transylvania.

## REFERENCES

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