

Pepenele galben cu coarne (*Cucumis metuliferus*) – specie alimentară și terapeutică cu posibilități de adaptare în arealul agroecologic Arad

Hălmăgean L., Meșter Mihaela, Zdremțan Monica, Balint Maria, Diaconescu Daniela, Ciutina V.

Rezumat: În arealul agroecologic Arad, zonă caracteristică pentru partea de vest a țării, începând cu anul 2012 s-au întreprins o serie de cercetări privind tehnologia de cultură la pepenele galben cu coarne. Fiind o specie de curând introdusă în România, dar nestudiată în partea de vest a țării, cercetările noastre au fost orientate pentru aclimatizarea acestei specii, elaborarea tehnologiei specifice de cultură pentru spații protejate și câmp, precum și ameliorarea speciei în direcția obținerii de soiuri noi cu caractere fenotipice superioare. Specia cercetată poate fi cultivată cu succes în arealul agroecologic Arad, atât în spații protejate cât și direct în câmp. Fructele sunt valoroase din punct de vedere nutrițional, conținând o serie de substanțe benefice în domeniul alimentar și medicinal (nu conțin colesterol).

Cuvinte cheie: pepenele galben, adaptare, areal agroecologic, caractere fenotipice, colesterol.

The yellow watermelon with horns (*Cucumis metuliferus*) – food and therapeutic species with adaptation possibilities in Arad agroecological area

Hălmăgean L., Meșter Mihaela, Zdremțan Monica, Balint Maria, Diaconescu Daniela, Ciutina V.

Summary: In Arad agroecological area, the characteristic area for the west side of the country, starting with 2012 were undertaken a series of research regarding the cultivation technology of yellow melon with horns. Being a recent species introduced in Romania, but not studied in the west part of the country, our research were oriented for the acclimatization of this species, the development of specific cultivation technology for protected areas or field, as like the improvement of this species towards obtaining new species with superior phenotypic

characters. The studied species can be successfully grown in Arad agroecological area, both in protected areas as in field, directly. The fruits are valuable from nutritional viewpoint, containing a several beneficial substances in food and medicine domain (doesn't contain cholesterol).

Key words: yellow watermelon, adaptation, agroecological area, phenotypic characters, cholesterol.

Introduction

Cucumis metuliferus is a annually species from *Cucurbitaceae* family, native from tropical and austral Africa were grows naturally in fields and in woodland areas. It is known as african cucumber with horns, mellon with horns, jelly mellon, melano, pikano or kiwano. Fruits are valuable from nutritional viewpoint because contains beneficial substances from food and medicine domain. It is appreciated by the exotic flavors amateurs and by those who want a hypocaloric diet. The fruit is poor in calories, but rich in potasium (266 mg/100 g), phosphorus (50 mg/100 g), magnesium (23 mg/100 g), calcium (17 mg/100 mg), proteins, vitamin C and doesn't contain cholesterol. The taste is a combination between cucumber and zucchini and when it's ripen, between banana, cucumber and lemon.

Materials and methods

In Arad agroecological area, the characteristic area for the west side of the country, starting with 2012 were undertaken a series of research regarding the cultivation technology of yellow melon with horns (*Cucumis metuliferus*). Beeing a new and not studied species in the west side of the country, our research were oriented for the aclimatization of this species, setting the right moment for crop field esthablishment and in protected areas, the determination of optimum space of nutrition (consistence), ways of crop esthablishment (seedling or sowing direct in the field), leading systems, of fertilization in ecological conditions, control formulas of weeds, diseases and pests.

With the exception of proposed research variants were applied in a big part the similar technology of the cucumber grown in field on high espalier and those from protected areas (they are from the same family - *Cucurbitaceae*). It was respected that in rotation, *Cucumis metuliferus* not to be back on the same surface sooner than three years, and as a precursory plant was follow after beans and peas. The basic fertilization in autumn was performed with organic fertilizers (30 t/ha stable garbage well decomposed).

The crop establishment can be accomplished by seedling and direct sowing. The seedlings were produced in heated protected areas, in nutritional cubes, thereby at plantation the seedling has to be approximately 15 days and a number of 4 - 5 leaves. The seed used to produce seedlings and in direct sowing in the field was heated. We tested a fertilization of the crop through seeds, a new concept that is based on the „starter” effect which these new fertilizers (Teprosyn) can be executed over the seeds and plants in the first developing phases.

This paper work it's proposes the presentation of the results obtained in three years of study (2012 - 2014) regarding the optimum time setting of establishment through seedling in protected areas (tunnel solarium type ICLF Vidra) and the optimum space of nutrition (density) at melon with horns species. The experience was two-factor structured, in randomized blocks with four rehearsals. The data capitalization was made after analysis method version applied to placed experiments in randomized blocks for many years and in the same town. Excepting proposed variants were applied the recommended crop technology for cucumber crop in protected areas. During vegetation period were effectuate determinations regarding morphofiziological and production indices over each version and rehearsal partly.

Table 1 The influence of planting moment and density at *Cucumis meluliferus* in protected areas (2012 - 2014)

A-Planting moment B-Density (Planting scheme)	(a-1) 05.04			(a-2) 15.04			(a-3) 25.04			(B)Planting scheme						
	t/ha	D(t/ha)	%	S	t/ha	D(t/ha)	%	S	t/ha	D(t/ha)	%	S	t/ha	D(t/ha)	%	S
b-1(12.346 pl/ha)	27,3	2,2	108,7		25,1	1,9	108,2		22,2	1,9	109,3		24,9	2,0	108,7	
4x1,4mx0,60m		-3,3	89,2	00		-5,12	82,8	000		-3,4	86,7	00		-3,9	86,5	0
b-2(9.260 pl/ha)	35,8	10,7	142,6	xxx	36,4	13,2	156,8	xxx	30,5	10,2	150,2	xxx	34,2	11,3	149,3	xxx
4x1,4mx0,80m		5,2	116,9	xxx		6,1	120,1	xxx		4,9	119,1	xxx		5,4	118,8	xxx
b-3(7.408 pl/ha)	32,3	7,2	128,7	xxx	33,5	10,3	144,4	xxx	26,8	6,5	132,0	xxx	30,9	8,0	134,9	xxx
3x1,4mx1m		1,7	105,6			3,2	110,5	xx		1,21	104,7			2,1	107,3	
b-4(5.556 pl/ha)	25,1	Mt ₁	100		23,2	Mt ₁	100		20,3	Mt ₁	100		22,9	Mt ₁	100	
3x1,6mx1m		-5,5	88,0	000		-7,1	76,6	000		-5,3	79,3	000		-5,9	79,5	000
b-5(6.945 pl/ha)	28,6	3,5	113,9		29,7	6,5	120,0	xxx	24,6	4,3	121,2	xx	27,6	4,7	120,5	xx
3x1,6mx0,80m		-2,0	93,5			-0,6	98,0			-1,0	96,1			-1,2	95,8	
b-6(9.260 pl/ha)	34,3	9,2	136,6	xxx	33,8	10,6	145,7	xxx	28,9	8,6	142,4	xxx	32,3	9,4	141,0	xxx
3x1,4mx0,60m		3,7	119,1	xx		3,5	111,6	xx		3,3	112,9	xx		3,5	112,2	x
Average values	30,6	-	-		30,3	-	-		25,6	-	-		28,8	-	-	

Results and discussions

Analyzing the results obtained in three years of studies and testing (average years 2012 - 2014), from fruits production viewpoint, were finds that the best age of establishment crop of *Cucumis metuliferus* E. H. Ney ex Schard in protected areas (tunnels ICLF Vidra – 5,40 m), for agroecological Arad area is in the first decade of april month. Very significant results were obtained in relation to the two witnesses at the establishment of crop in both april 5th as in 15 of april, production differences being contained between 3,7 and 13,2 t/ha (table 1.1).

Factor action concerning the optimum space of nutrition settings, the results are different, from significant productions to very significant productions. Compared to the two witnesses, very significant results were obtained using densities between 7408 and 9260 pl/ha, both on four rows as well as on three rows from tunnel solarium.

In the bilateral combination – establishment age and plantation sketch – the best association for the agroecological Arad area is obtained trough establishing by plantation in protected areas (tunnels covered with polyethylene foil with 5,40 m width) during 5 -15 of april with a 7408 – 9260 pl/ha density. During vegetation period were made phenologic observations over the main morphoproductive indices, on versions and rehearsals.

Conclusions

1. Food and therapeutic importance of this species and the optimum conditions for a ecological agriculture in Arad area, justify the undertaken research regarding the yellow mellon with horns (*Cucumis metuliferus*).

2. The studied species has rapidly demonstrated by the genetic potential, adaptability at environmental conditions specifically to the agroecological area from the west side of the country, especially in protected areas.

3. The optimum space of nutrition for this species include the distance between the rows that is 1,4 – 1,6 m and between plants in a row is 0,60 – 0,80 m, making densities between 7408 and 9260 pl/ha.

4. The optimum establishing age for the crops from tunnel solarium is the first decade of april month.

Refernces

Păun, E. and co., 1998 – Medicinal and aromatic plants treaty, volume II, Publishing Academica, Bucharest.

Stoian, L and co, 2008 – Ecological culture of melons vegetables, Publishing EstFalia, Bucharest.

Benzioni, A., Mendlinger, S. and Ventura, M., 1996 – Improvement of the appearance and taste of kiwano fruits for export to the ornamental and consumer markets, Acta Hort. (ISHS) 434 : 293 – 300.

http://www.actahort.org/books/434/434_36.htm.