SUMMARY

Keywords: cultivar, Tomato collection, improvement, array multiplier, maintenance.

Cultivar or variety is along recognized as an well known input by the agricultural science, with a significant role in achieving efficient production with three intensiv factors – real „heroes of the green revolution" -chemization, irrigation and mechanization.

Because of this, at the national or even regional (European), there is a special strategy for creating, maintaining (preserving) multiplication and use in production of more competitive cultivars. In the context of sustainable agriculture using organic or ecological, cultivars has new facets should be more pronounced facets such as: environmental plasticity, disease resistance, high response at a relatively low anthropogenic complain so.

In Republic of Moldova, at the Institute of Plant Culture „Porumbeni", there is a rich collection of cultivars - open pollinated varieties - of tomato, with high suitability for processing.

Observations and biometric determinations revealed special features of these cultivars: determinate plant growth, concentrated fruit ripening time and simultaneity of maturation, high levels of substances dried fruits of different sizes, intense colors, resistant to mechanical damage.

In these circumstances the question of recovery was higher in this tomato assortment.

In this way the idea for solving this problem by conducting a thesis in Romania, University of Agricultural Sciences and Veterinary Medicine „Ion Ionescu de la Brad" Iassy.

The aim of this thesis is clear from it's title, namely: *Research in order to optimize the introduction in the cultivation and multiplication of tomato assortment in Republic of Moldova*

By this goal, an answer is given to the desire for greater recovery of a biological treasure that will ensure the upgrading of processing tomato production using crop performance qualities agroproductive through some major resistance to pathogens and environmental plasticity and adaptability to conditions from Republic of Moldova as in its neighboring regions.

In the same time, scientific and technical information obtained during investigations planned by the sentence plan will allow the possibility for recovery of biological material studied genetics and improvement work both domestically and in other countries through international trade. In this way will ensure participation of national research in the field of international scientific and technical networks.

To get the purposed goal established by setting and achieving the following major goals or direction: study landscape conditions over the biological material to be analyzed existing collection Porumbeni Institute; tomato study an Institute collection Porumbeni the main morphological characters, phenological and resistance to pathogens; research on the production capacity of a narrow range of cultivation of perspective; research on the variability of tomato cultivation in the production of seed for improving the production of basic seed.

Consummation of the proposed research, proposed goals that took place on a well structured sentence plan. Thus, the thesis comprises two parts and seven chapters.

Part I - Information and scientific-technical documentation contains a single chapter

Chapter I - *The state of research regarding the tomato crop*, in which there are the subsections: importance, origin and range; the general methodology for breading and seed production of tomatoes, tomato growing general technology for seed production.

Part II - *UHJUI*, with the following six chapters:

Chapter II - *Goal, objectives and general methodology of research;*

Chapter III - *Study of organizational conditions and natural environment;*

Chapter IV - *Research in the collection of tomato Porumbeni Institute;*

Chapter V - *Research on production capacity range;*

Chapter VI - *Research on the variability of tomato cultivation in the process of obtaining seed*;

Chapter VII - *General Conclusions*

Chapters IV, V and VI have the following structure: goals and objectives, material and method of work, specific results and conclusions of each chapter.

The paper ends with references consulted, including titles from Romanian, Moldovan, Russian literature and other countries.

Chapter I is a general summary of the main issues concerning culture and especially tomato processing tomato crop.

Importance of tomato is treated in detail reffering to food importance, the therapeutic importance, agrotechnical importance, economic importance, social importance and the main risk factors.

From the presentation made it is clear that tomatoes are one of the main vegetable crop area and production both in Moldova and Romania and throughout the world: over 3.6 million hectares and over 100 million tonnes. Culture is successful in all world regions where found favorable conditions, but also has a number of risk factors from which the most important are diseases and pests.

Tomatoes are known for about 5,000 years in Central and South America and arrived in Europe after being discovered by Columbus (1492-1493), but have been cultivated since the eighteenth century, and only in the Romanian Principates at the late nineteenth century.

The general methodology for breading and seed production of tomato refers to methods of breading the selection method for the maintenance and general procedure of introduction and multiplication of varieties of tomatoes.

Subchapter 1.3 - General Technology growing tomatoes for seed production is a practical presentation on the main elements of the seed culture, namely biological and cultural features, and technical objectives of culture selection for seed production.

Part II of the thesis begins with chapter II.

In this chapter the thesis aim and objectives, as was shown at the beginning of the summary.

In part two of this chapter is presented the general methodology used, with special reference to the organization of research, (range of experience), the biological material used (collection of tomatoes for processing Porumbeni Institute) and general research methods and techniques .

Chapter III presents a study on organizational conditions and natural environment in which investigations were conducted.

The research was organized at the Institute of Crop Production „Porumbeni”- major institution of importance for agricultural research in Moldova, with a staff of over 400 employees, of which over 140 graduate.

Basic task of the institute is to improve, and improve seed production technology of maize cultivation. Also, more research is conducted for sorghum, vegetable crops, potato, herbs and ornamental plants.

Vegetable crop research aimed at creating varieties and hybrids of tomatoes, peppers, eggplants and cucumbers, and seed production in these species, also conducted research for improving technology are growing vegetables.

Study landscape conditions reveal that all hydrological conditions, relief, soil and climatic conditions are favorable and vegetable cultivation, respectively tomatoes.

Predominantly chernozem soil with clay loam texture, a humus content of 3.1%, pH 6.9-7.0, with a good supply of phosphorus and potassium.

As to climate Institute Porumbeni "is in an area with temperate continental climate with hot summers, moderate winters and relatively wet winters. Multi-annual average air temperature is 8.7 ° C, the amount of active temperature being 3000-3200 ° C. Average annual rainfall amount is about 474 mm. In the experimental period, 2007 was particularly warm and dry, and in 2008 had favorable weather conditions for growing tomatoes.

Chapter IV - Research in the collection of tomato Porumbeni Institute, aims to highlight the general characteristics of morphological and phenological description of the collection. To achieve this goal have been set specific objectives: describe morphological, physiological characteristics and disease resistance and production assessment.

The research was organized at the Institute of Crop Production „Porumbeni" in collection of 50 selected tomato cultivars processing of the entire collection includes over 175 as standard, which is part of a collection of over 250 original cultivation.

Studied cultivars, belong to type of open pollinated cultivars and local populations from Republic of Moldova, Bulgaria, Romania, USA, etc., and from individuals who are concerning in this area.

The 50 cultivars provides a wide range of variability in terms of production quality and earlyness.

A first set of results presents the characterization of the collection after the UPOV system. The main features of the UPOV system are presented in the collection, revealing the UPOV system that most characters are found in the collection studied, which means great diversity of biological material, and its importance to the general fund of tomato germplasm.

In a second set of results is presented characterization of cultivars in terms of the following morphological characteristics: vigour, foliage color, joint (of fruit peduncle), fruit size, the ratio h/d (height/diameter), fruit shape, number of chambers, green stain, the color of the fruit until physiological maturity, color, physiological maturity.

The results highlight the great diversity of biological material, for some general character (plant vigour and foliage color) and some characters of great importance for processing (for example - present in 19 cultivars).

Phenological characterization of the collection highlights the different characteristics to length fenofaze: from emergence to first fruit ripening, from blooming to ripening of first fruits, from sunrise until the last fruit maturation, the early ripening fruit to mature last.

Thus it is highlighted earlyness/lateness cultivars, ripening period and during the growing season. For example, flowering lasts between 34 days (Zagadca cultivars) and 59 days (to cultivars Sibersseii Scorospelîi). Based on data presented is a classification of the collection made by timpurietate (during the growing season to bloom).

The same chapter, in a series of results on the major pathogens resistance cultivars is presented in attack behavior collection *Mycoplasma spp* and *Phytophthora infestans* vesicatorie *Xanthomonas.*

Research has revealed seven cultivation of *Mycoplasma spp* resistant to attack, most cultivars resistant to *Xanthomonas vesicatorie* and 21 *Phytophthora infestans* resistant to cultivation. Also it is showed that downy milden is the most dangerous disease of tomatoes.

Chapter V - Research on production capacity range aimed to determine the value of production of a growing assortment of 20 of the collection „Porumbeni”. To achieve the proposed targets were set following study of phasing and dynamics of harvest, analysis of early production and analysis of the total production of cultivars.

As this material was used for cultivation of 20 growing collection of 50 studied in the previous chapter, and the method has been used in the study of comparative plots. The research was conducted in vegetable growing field of Institute „Porumbeni”, during 2006-2008. Production differences were found compared to the experiment average using LSD. (LSD 5%, LSD1%, LSD 0.1%).

The results are divided into three objectives: staggering and dynamic production, tomato production summer, the total production of tomatoes. On the timetable and dynamic production that takes place in the range over three months, as highlighted timpurietatea harvest, while its concentration, as crop tops. Harvesting begins on July 25 and ends on October 25. On September 25 were the highest recorded harvest in most cultivars. Maximum harvest level of experience is obtained between September 10 to 25, with values of 6.09 to 6.93 t/ha.

Summer tomato production ranged from 3.17 t/ha and by 11.12 t/ha, while the average experimental value was 5.51 t/ha. Highest yields were achieved Zagadca cultivar (11.12 t/ha), Novicioc (8.76t/ha) and Leana (8.53 t/ha), which can be considered the earliest.

Total production of tomatoes is between very large limits, from 16.26 t/ha to 29.31 t/ha, while the average amount of experience was 23.98 t/ha. Highest yields were produced by cultivars: Persly (29.31 t/ha), Novicioc (29.17 t/ha), Nota (27.64 t/ha) and Caterina (27.88 t/ha).

Chapter VI - presented research on the variability of tomato cultivation in the process of seed production.

Research goal is to develop the fundamentals for scientific maintenance process and obtain basic seed for multiplication and introduce the production of the best cultivation.

The biological material consisted of three cultivation skills were noted by agroproductive: Zagadca (early), Note (summer-autumn) and Persia (winter).

Variability study was conducted based on the following statistical indicators: the limits of variation, arithmetic mean, standard deviation, standard variation range and coefficient of variation, like the string on the histogram and curve variation and change.

Variability was studied for three quantitative characters: number of fruits per plant (NFP), weight fruit per plant (PFM) and the average weight of a fruit (MMF).

Variability of character „number of fruit per plant";was considered to be within normal limits for all three cultivation. Thus, the arithmetic mean was following: 21.36 - to Zagadca, 28.74 - in Persei, and in Nota 26.09, and coefficient of variation had values close to the value of 20%, which shows a medium to variability large. Study using histogram and highlights the curve of the three cultivation, in terms of this character, represented by a single homogeneous population, balanced and stable.

Variability of the character „fruit weight per plant"; within normal limits for the cultivars studied. Arithmetic mean value is 1.97 kg - at Zagadca, 3.0 kg and 2.56 kg - Persei to note. Coefficient of variation had values of 23.38% - to Zagadca, 20.59% - 21.88% to Persei and - the nNota, which shows that the three crop variability, in terms of the character is high or high to medium.

Other indicators, and histograms/curves reveals that variation for this character of the three cultivars are homogenous, balanced and stable.

Variability character „average weight of fruit"; highlights that the three cultivars presents a diversity within the population to normal levels. The average weight of 99g fruit has value - in Zagadca, 113g - in Persey and 104 - to Nota. Variability coefficient has values that oscillate around 4-6%, which is in surprisingly low variability. Low variability is explained by the fact that it is the average weight of fruit per plant, resulting in mass media reporting of fruit per plant by the number of fruit per plant.

Study using histogram / curve of highlights that all three are growing homogenous, balanced and stable.

Overall results show that the thesis research aims and objectives set were fully achieved.

Following known best range studied in terms of morphological, phenological and disease resistance is known in detail the capacity of a growing assortment of 20 prospective.

Program of seed production and cultivation introducing performance is grounded in the study during the maintenance and variability of obtaining basic seed.