

## **CONTRIBUȚII PRIVIND ÎMBUNĂȚĂȚIREA TEHNOLOGIEI DE CULTURĂ A PIERSICULUI CULTIVAT PE NISIPURILE DIN SUDUL OLTENIEI CONTRIBUTIONS TO IMPROVING CULTURE TECHNOLOGIES OF PEACHES GROWN ON SANDY SOILS THE SOUTH OF OLTENIA**

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### **Abstract**

Technological factors with major implications in obtaining high yields and quality in peaches grown on sandy soils are planting row distance and shape of the crown, soil maintenance system, chemical, organic and foliar fertilization. A small size combined with the flattening of the crowns of the trees allows a dense planting, also ensure proper mechanization of work and easy penetration of light to the leaves and fruits. Crown form vertical belt proved to be suitable for all planting distances studied, easily made and maintained, having fruit production ranged between 15.9 t / ha at a distance of 2 m, 10.3 t / ha at a distance of 2.5 m and 7.9 t / ha at a distance of 3 m. The state of soil nutrient supply influence successful peach crop on sandy soils. The fertilizer dose of technology to N100 P80 K100 kg s.a / ha production was 34.9 t / ha. Organic fertilization also contributes to obtaining high yields of peach. In sandy soil conditions most fruit production of 9.6 t / ha was obtained by fertilization with organic manure 60t/ha. Besides fertilization, soil maintenance system is one important link in the technology peach crop on sandy soils. The results found that the biggest peach fruit production was obtained from field maintenance system black-8,2t/ha. Using technology in foliar peaches culture on sandy soils, is an important means of providing nutrients that lead to improved processes of growth and fructification. The best way is with foliar fertilization Folibor in dose 5l/ha, the production obtained was 12.4 t / ha.

**Cuvinte cheie:** sol nisipos, piersic, tehnologii

**Keywords:** sandy soils, peach trees, technology.

### **1. Introduction**

In order to capitalize effectively sandy soils in the field concerns had to lay down on the productive potential of the main technological links to peach.

Research has revealed high adaptability and production capacity of species of stone (Cociu. V. And colab 1981, Antonia Ivașcu, Viorica Bălan 1991, Antonia Ivașcu, Bereșiu Ileana, 1994, Antonia Ivașcu, Murvai Monica, Popa Elena. 1993).

A basic factor for the growth and fruition of trees grown on sandy soils is the concern to preserve and increase the fertility of these poorly fertile soils.

Choosing the range of fruit species with high suitability ecopedological conditions, establishment of appropriate technological links is essential in obtaining fruit production, safe and stable. (Antonia Ivașcu 1991, 1992, Cociu V. 1993, Antonia Ivașcu, Ionescu P, Dumitru Liliana 1997).

Directing to the actuality problems presented hereinbefore, in the present work is presented one results obtained on species peach.

### **2. Material and methods**

The researches they accomplished to CCDCPN Dabuleni to the species the material peach tree in orchard of peach tree with the kind Redhaven:. The agrotechnics applicable in experimental were one elaboration of CCDCPN Dăbuleni accordingly the species of the peach tree. The soil on which were amplified the experiences is soil a typical antropoc covering erodisol argilo a table-like phreatic iluvial. The fertility of the soil is thin, contained in clay be contained between 0,18-0,58, the one of azote total 0, 021-0, 032, P-AL 12-32 the ppm, K-AL 27-31, 9 the ppm.

The reaction of the soil is thin the acid toward neutral 6.5 – 6.9.

The technological factors with great implications about potential productive the by-path: optimum density of plantar and form of crown, the system of upkeep, the fertilization organo the mineral and foliar.

The use fertilisation foliar in the technology of culture of the peach tree on the sabulous soils represent very an which importances drives to the improvement of the process of growth and fructify.

### 3. Results and discussions

Of research results obtained it was found that the variety of peach Redhaven all distances the largest planting of fruit production were obtained from crown shaped vertical cord, with values ranging between (15.9 t / ha at a distance of 2m, 10.3 t / ha at a distance of 2.5m and 7.9 t / ha at a distance of 3m).

The effect of the form of crown he demonstrated better to vertical cord ( table 1).

A small size combined with the flattening of the crowns of trees allows for dense planting, while ensuring appropriate mechanization of work and easy penetration of light on leaves and fruit.

The quantitative level of the production of fruits is caused in forerank above-ground total the which crowns is elder in the intensive plantations and superintensive with dwarfish trees against the intensive orchards with vigorous trees.

Form of crown is one of the the decisive factors have the capitalization of the culture of the peach tree.

The state of soil nutrient supply along with other factors influence success largely fruit orchards cultivated on sandy soils. The results highlight the positive effect of fertilization on the growth of chemical and fruit production (table 2).

The fertilization has the role assured permanently an optimum level of elements fertilizante the soil and the leafage in the sight realization prerequisite for equilibrium a growth accordingly a trees and an abundant fructification year of year.

From the results of production obtained in the he consisted that most big productions of fruits they obtained to the dose of organic fertilization of 40 and 60 t /ha manure.

Analysing the influence of the variants of chemical fertilization he consisted, that against witness unfertilizer, most big productions of fruits they obtained in the variant fertilized with N100 P80 K100 the efficiencies of production be insured statistical significant stinct and very significant positive the values be contained between 1, 7-2, 7t/ha( table 3). The system of keep the soil is some from the important links in the technology of the culture of the peach tree conducing to the complet manifestation of genetic appropriations ale of the kinds, especially longevity and productivity.

From the results obtained in the conditions of the year on the sabulous soils, he consisted that most big productions of fruits they obtained in the system of upkeep with field, negro (table4 ).

From the analysis of statistical calculus to the variants of fertilization from the frame of the system of upkeep dead-fallow, he consisted that against nefertilizat except in the variant fertilizatã with N100 P80 K100 he obtained a difference of production of 4, 7t/ha insured statistical very significant positive.

To the system of upkeep natural vegetable the differences of production against the variant unfertilized were insured statistical( table 5).

The use foliar ferertilizers in the technology of culture of the peach tree on the sabulous soils represent very an which importances drives to the improvement of the process of growth and fruit

Research the latest domestic and world reveal the essential role of boron in plant nutrition and opportunities for increasing production by using boron fertilizer. In peach, the foliar fertilization with a dose of 5l/ha Folibor and boron complex were obtained 5l/ha production increases ranging from 0.55 to 4.05 t / ha by fertilization fertilizer production Cupribor to witness growth fertilization was 2.9 t / ha provided separately statistically significant (table 6).

When administered alone Folibor increase production from fertilized variant was 4.7 t / ha. In terms of sustainable agriculture is going on reducing doses of chemical fertilizers and foliar fertilizer use, which can reduce the risk of pollution of the soil.

By reducing the dose from N150 to N75 P50 K50 K100 P100 and application Folibor 5 l / ha to increase production of fertilized variant was 5.8 t / ha and by reducing the dose of manure at 30 t / ha 15 t / ha to increase production of fertilized variant was 5.7 t / ha.

### 4. Conclusion

Form of crown is an esential element of the agrotechnics pomicole of which depends the productivity of the tree, maintain productive capacity on the period be the orchard.

Form of crown vertical cord he were pretabil for all distances of planting studios, be easy of achieved and kepted.

In the conditions of sabulous eldest soils production of fruits to peach tree obtained to the fertilization with 60t/ha manure and chemical fertilization with N100 P80 K100

One the better the system of keep the soil in the orchards from the sabulous soils is the dead-fallow.

Most good variant of foliar fertilization is one withFolibor in doze de 5 l/ha

Foliar fertilized variant to the largest production increases were achieved in variants fertilized with foliar Folibor, 5 l / ha, four treatments and Bor complex, 5 l / ha, 4 treatments, increases production as very significant statistically, with values ranging between 2.0 and 2.6 t/ha.

When administered alone Foliborul increase production from fertilized variant was 4.7 t/ha. In terms of sustainable agriculture is going on reducing doses of chemical fertilizers and foliar fertilizer use, which can reduce the risk of pollution of the soil.

By reducing the dose from N150 to N75 P50 K50 K100 P100 and application Folibor 5 l/ha to increase production of fertilized variant was 0.2 t/ha and by reducing the dose of manure at 30 t/ha 15 t/ha to increase production of fertilized variant was 0.2 t/ha .

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## Tables

**Table 1. The production of fruits to the kind of peach tree Redhaven depending on the distance of planter and form of crown**

| Planting distance between trees on all | Form of crown   | Production obtained t/ha | Production relative% | Diferention against witness t/ha | Semnification |
|--|-----------------|--------------------------|----------------------|----------------------------------|---------------|
| 2 m                                    | Vertical cord   | 15.9                     | 123.25               | 3.6                              | *             |
|  | Time-bush       | 13.7                     | 106.20               | 2.4                              |               |
|  | Palm- flattened | 12.3                     | 100.00               | 0                                |               |
| 2,5m                                   | Vertical cord   | 10.3                     | 128.70               | 2.3                              | *             |
|  | Time-bush       | 9.0                      | 112.50               | 1.3                              |               |
|  | Palm- flattened | 8.0                      | 100.00               | 0                                |               |
| 3m                                     | Vertical cord   | 7.9                      | 175.50               | 3.4                              | *             |
|  | Time-bush       | 5.3                      | 117.70               | 0.8                              |               |
|  | Palm- flattened | 4.5                      | 100.00               | 0                                |               |
| LSD 5%                                 |                 |                          |                      | 2.37                             |               |
| LSD 1%                                 |                 |                          |                      | 4.74                             |               |
| LSD 0.1%                               |                 |                          |                      | 6.69                             |               |

**Table 2. Influence the level of fertilization on production of fruit in peach, grown on sandy soils in southern Oltenia**

| Doza of chemical fertilization | Production obtained t/ha |
|--------------------------------|--------------------------|
| N50P40K50 (Witness.)           | 30.6                     |
| N100P80K100                    | 34.9**                   |
| N200P160K200                   | 35.0**                   |
| N300P240K300                   | 34.1*                    |

LSD 5%=

2.51

LSD 1%=

3.52

LSD 0.1%=

4.98

**Table 3. The production of fruits to the kind of peach tree Redhaven depending on the system of fertilization organo -mineral**

| The dose of organic fertilization | Doza of chemical fertilization | Production obtained t/ha | Production relative% | Diferention against witness t/ha | Semnification |
|-----------------------------------|--------------------------------|--------------------------|----------------------|----------------------------------|---------------|
| 20t/ha manure                     | N0P0K0                         | 5.5                      | 100.00               | 0                                | Mt            |
|                                   | N50P40K50                      | 7.0                      | 127.27               | 1.5                              | *             |
|                                   | N100P80K100                    | 7.2                      | 130.90               | 1.7                              | **            |
| 40 t /ha manure                   | N0P0K0                         | 6.6                      | 100.00               | 0                                | Mt            |
|                                   | N50P40K50                      | 8.7                      | 131.81               | 2.1                              | **            |
|                                   | N100P80K100                    | 9.3                      | 140.90               | 2.7                              | ***           |
| 60t/ha manure                     | N0P0K0                         | 7.4                      | 100.00               | 0                                | Mt            |
|                                   | N50P40K50                      | 9.4                      | 127.02               | 2.0                              | **            |
|                                   | N100P80K100                    | 9.6                      | 129.72               | 2.2                              | ***           |
| LSD 5%                            |                                |                          |                      | 1.08                             |               |
| LSD 1%                            |                                |                          |                      | 1.52                             |               |
| LSD 0.1%                          |                                |                          |                      | 2.15                             |               |

**Table 4. The production of fruits to the kind of peach tree Redhaven depending on the system of upkeep dead fallow and fertilizer mineral**

| The system of keep the soil | Variant of chemical fertilization | Production obtained t/ha | Production relative % | Diference against witness t/ha | Semnification |
|-----------------------------|-----------------------------------|--------------------------|-----------------------|--------------------------------|---------------|
| dead-fallow                 | N0 P0 K0                          | 3.5                      | 100.00                | 0                              |               |
|                             | N50 P0 K0                         | 4.0                      | 114.28                | 0.5                            |               |
|                             | N50 P40 K50                       | 5.9                      | 168.57                | 1.6                            | **            |
|                             | N100 P80 K100                     | 8.2                      | 234.28                | 4.7                            | ***           |
| LSD 5%                      |                                   |                          |                       | 2.00                           |               |
| LSD 1 %                     |                                   |                          |                       | 2.81                           |               |
| LSD 0.1%                    |                                   |                          |                       | 3.95                           |               |

**Table 5. The production of fruits to the kind of peach tree Redhaven depending on the system of upkeep natural vegetable and the fertilization mineral**

| The system ofkeep the soil | Variant of chemical fertilization | Production obtained t /ha | Production relative% | Diference against witness t/ha | Semnification |
|----------------------------|-----------------------------------|---------------------------|----------------------|--------------------------------|---------------|
| Natural vegetable          | N0 P0 K0                          | 3.2                       | 100.0                | 0                              | Mt            |
|                            | N50 P0 K0                         | 3.5                       | 109.3                | 0.3                            |               |
|                            | N50 P40 K 50                      | 3.5                       | 109.3                | 0.3                            |               |
|                            | N100 P80 K100                     | 5.1                       | 159.3                | 1.6                            |               |
| LSD 5%                     |                                   |                           |                      | 2.56                           |               |
| LSD 1%                     |                                   |                           |                      | 4.59                           |               |
| LSD 0.1%                   |                                   |                           |                      | 10.92                          |               |

**Table 6. Influence of foliar fertilization with boron fertilizer on fruit production from peach**

| Variant of foliar fertilization | Production obtained t /ha | Production relative% | Diference against witness t/ha | Semnification |
|---------------------------------|---------------------------|----------------------|--------------------------------|---------------|
| Witness -unfertilized foliar    | 8.3                       | 100.0                |                                | <b>Mt.</b>    |
| Acid boric 0,15%                | 8.9                       | 0                    |                                | -             |
| Folibor 5 l/ha                  | 10.4                      | +0.55                | +2.10                          | *             |
| Folibor standard 5 l/ha         | 12.4                      | 148.0                | +4.05                          | ***           |
| Cupribor 5 l/ha                 | 11.2                      | 134.6                | +2.90                          | **            |
| Bor complex 5 l/ha              | 12.4                      | 148.0                | +4.02                          | ***           |
| LSD 5%                          |                           |                      | 1.65                           |               |
| LSD 1%                          |                           |                      | 2.29                           |               |
| LSD 0.1%                        |                           |                      | 3.16                           |               |

**Table 7. Influence of foliar fertilization with boron complex natural fertilizers on fruit**

| Variant of foliar fertilization | Production obtained t /ha | Production relative% | Diference against witness t/ha | Semnification |
|---------------------------------|---------------------------|----------------------|--------------------------------|---------------|
| Witness unfertilizer foliar     | 9.5                       | 100.0                | 0                              |               |
| Folibor 5l/ha 2 treatments      | 10.6                      | 111.5                | +1.1                           | *             |
| Folibor 5l/ha 4 treatments      | 12.2                      | 128.0                | +2.6                           | ***           |
| Cupribor 5l/ha 2 treatments     | 10.8                      | 113.3                | +1.2                           | *             |
| Cupribor 5l/ha 4 treatments     | 10.9                      | 114.4                | +1.3                           | *             |
| Bor complex 5l/ha 2 treatments  | 11.0                      | 115.4                | +1.4                           | **            |
| Bor complex 5l/ha 4 treatments  | 11.5                      | 120.9                | +2.0                           | ***           |
| LSD 5%                          |                           |                      | 1.0                            |               |
| LSD 1%                          |                           |                      | 1.3                            |               |
| LSD 0.1%                        |                           |                      | 1.8                            |               |

**Table 8. Influence of fertilization with chemical fertilizers and organic complexes and boron complex natural fertilizers on fruit production**

| Variant of fertilizer                      | Production obtained t /ha | Production relative% | Diference against witness t/ha | Semnification |
|--|---------------------------|----------------------|--------------------------------|---------------|
| Witness -unfertilizer                      | 9.5                       | 100.0                | 0                              | -             |
| M2-N150P100K100                            | 10.5                      | 110.7                | +1.0                           | -             |
| M3-30t/ha manure                           | 10.8                      | 118.8                | +1.3                           | -             |
| Folibor 5l/ha 2 treatments                 | 14.2                      | 150.2                | +4.7                           | ***           |
| N150 P100 K100 +Folibor 5l/ha 2 treatments | 15.1                      | 159.1                | +5.6                           | ***           |
| N75 P50 K50 +Folibor 5l/ha 2 treatments    | 15.3                      | 161.5                | +5.8                           | ***           |
| 30 t/ha manure +Folibor 5l/ha              | 14.2                      | 150.2                | +4.7                           | ***           |
| 15 t/ha manure +Folibor 5l/ha              | 15.2                      | 160.2                | +5.7                           | ***           |
| LSD 5%                                     |                           |                      | 2.1                            |               |
| LSD 1%                                     |                           |                      | 2.8                            |               |
| LSD 0.1%                                   |                           |                      | 3.9                            |               |