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CULTIVATION OF NEW RASPBERRY CULTIVATION OF NEW FIG VARIETIES IN THE CONDITIONS OF ANDIJAN REGION

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Abstract

This study assessed growth, development and yield-related traits in the raspberry (*Rubus idaeus* L.) cultivars Vladimir, Maravilla and Lyachka, together with selected breeding accessions. The biometric traits examined included the numbers of flowers, fruits, ripe fruits, branches and leaves. Field observations were used to compare vegetative and reproductive development. Accession 2(I) produced the highest reported number of leaves (175), while Maravilla had the greatest number of branches (40). Accession 2(II) produced the highest reported fruit count (56), and Lyachka had the greatest number of ripe fruits (10). The



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results indicate variation among the material examined in both vegetative and reproductive traits. Accession 2(II), Maravilla and Lyachka were identified as promising for further evaluation and possible cultivation.

Keywords: raspberry, berry crops, cultivar, yield, biometric traits, breeding, vegetative development, reproductive development.

Introduction

The development of fruit and vegetable production, the cultivation of export-oriented products and the provision of vitamin-rich food are important priorities of Uzbekistan's agricultural policy. Among berry crops, raspberry (*Rubus idaeus* L.) is valued for its biological characteristics, nutritional composition and reported medicinal importance. Its cultivation can contribute to the range of fruit crops produced for local consumption and markets.

Raspberry fruits contain vitamins C, A and those of the B group, together with organic acids, pectin substances, iron, potassium and other beneficial constituents. This composition contributes to their nutritional value, while their flavour and use as fresh fruit and in processed products support consumer interest. Demand for raspberry is reported to be increasing in the international market, creating interest in identifying cultivars that can be grown successfully under local conditions.

The productivity and practical value of a raspberry plantation depend in part on the biological characteristics of the cultivars grown. Cultivars may differ in growth vigour, branching, leaf production, flowering and fruit set. These traits describe different aspects of plant development: leaf and branch production characterise vegetative growth, while flower, fruit and ripe-fruit counts provide



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observations of reproductive development. Their joint assessment can help distinguish cultivars and breeding accessions with contrasting growth patterns. Field evaluation is especially useful when several cultivars or breeding accessions are grown under the same site conditions. It allows their recorded characteristics to be compared within the observation setting and can help identify material for further study. The aim of this research was to examine the biometric traits of raspberry cultivars and breeding accessions and to identify entries with promising yield-related characteristics.

Study Material and Methods

The study material comprised the raspberry cultivars Vladimir, Maravilla and Lyachka, together with selected breeding accessions. The measured biometric traits were the numbers of flowers, fruits, ripe fruits, branches and leaves. Observations were conducted under field conditions. The recorded data were compared and analysed to describe differences among the cultivars and accessions in their vegetative and reproductive development.

Results

The field observations revealed variation in the biometric traits of the raspberry cultivars and breeding accessions. The highest recorded value depended on the trait considered: accession 2(I) had the most leaves, Maravilla had the most branches, accession 2(II) had the highest reported fruit count, and Lyachka had the greatest number of ripe fruits. The results therefore show different strengths among the entries rather than one entry leading in every measured characteristic. Accession 2(I) produced 175 leaves, the highest value reported for this trait. Vladimir was recorded with 120 leaves. Accession 3(III) was described as having 160 leaves, 36 branches and 10 fruits. These observations indicate that several



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entries showed substantial vegetative development, although their fruit counts differed. The source does not give leaf counts for every cultivar or accession.

Maravilla had the highest branch count, with 40 branches. Other reported branch counts included 37 for accession 2(I), 36 for Augustina and 28 for Vladimir. The remaining entries in Table 1 also showed variation in branch number. Branch production is a useful descriptive trait when comparing plant structure; however, branch count alone does not establish fruit yield, which must be assessed from harvest data.

Accession 2(II) had the highest reported fruit count, at 56, and was also recorded with seven flowers and five ripe fruits. Maravilla produced 34 fruits and seven flowers. Accession 4(II) produced 33 fruits, while the accession numbered 5 produced 14 fruits and five ripe fruits. These values distinguish the entries by the number of fruits recorded during the observation period.

Lyachka produced 13 fruits, of which 10 were ripe, the highest ripe-fruit count reported. Augustina was recorded with 10 fruits and one ripe fruit. The source characterises Lyachka as an early-ripening cultivar on the basis of its ripe-fruit count. The observations thus distinguish total fruit number from the number of fruits that had ripened by the time they were recorded.

Table 1. Biometric traits of raspberry cultivars and breeding accessions

No.	Cultivar accession or	Flowers	Fruits	Ripe fruits	Leaves	Branches
1	Vladimir	—	—	—	120	28
2	2(I)	—	—	—	175	37
3	2(II)	7	56	5	—	18
4	2(III)	—	—	—	—	23
5	3(I)	—	—	—	—	15
6	3(III)	—	10	—	160	36



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No.	Cultivar accession	or	Flowers	Fruits	Ripe fruits	Leaves	Branches
7	Augustina		—	10	1	—	36
8	Maravilla		7	34	—	—	40
9	4(I)		—	—	—	—	19
10	4(II)		3	33	—	—	19
11	Accession 5		—	14	5	—	27
12	Lyachka		—	13	10	—	20

Results Analysis and Discussion

The observations show that the cultivars and breeding accessions differed in their recorded biometric characteristics. The distinction between vegetative and reproductive traits is clear in the reported results. Accession 2(I) had the greatest leaf count, and Maravilla had the greatest branch count, whereas accession 2(II) led in total fruits and Lyachka in ripe fruits. The entries should therefore be compared according to the specific trait of interest.

The high leaf count recorded for accession 2(I) indicates pronounced vegetative development in the observed plants. Accession 3(III) and Vladimir were also reported to have high leaf counts, at 160 and 120, respectively. These values describe the plants' vegetative characteristics; they should not by themselves be treated as evidence of greater yield. A fuller assessment would consider these observations alongside flower production, fruit set, fruit ripening and harvest measurements.

Maravilla's 40 branches distinguish it from the other entries in the branch-count comparison. A larger number of branches may provide more sites for flowering and fruiting, but the present data do not demonstrate a direct relationship between branch number and yield. Maravilla also produced 34 fruits and seven flowers,



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giving it a combination of recorded vegetative and reproductive traits that supports its selection for further evaluation.

Accession 2(II) had the highest reported fruit number, with 56, and was recorded with seven flowers and five ripe fruits. Accession 4(II) was reported to have 33 fruits. These counts suggest that the two accessions merit further study, although the available information does not include replicated measurements or statistical tests. Accordingly, the differences are described as observed differences rather than statistically significant effects.

Lyachka had 10 ripe fruits out of 13 recorded fruits, the highest ripe-fruit count in the study. The source interprets this result as evidence of early ripening. This may be practically useful when comparing cultivars for harvest timing, but confirmation would require observations across defined dates and, ideally, multiple seasons. Augustina was recorded with 10 fruits and one ripe fruit, showing that total fruit count and ripe-fruit count did not necessarily follow the same pattern across entries.

Conclusion

1. Field observations showed differences among the raspberry cultivars and breeding accessions in leaf production, branch formation, fruit number and fruit ripening. The entries therefore displayed distinct vegetative and reproductive characteristics under the conditions in which they were assessed.
2. Accession 2(I) produced the highest reported number of leaves, with 175. This result indicates strong vegetative development in this accession, although leaf number alone does not establish its overall yield potential.
3. Maravilla had the greatest number of branches, with 40 recorded. It also produced 34 fruits and seven flowers. The combination of these observations



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makes Maravilla a promising cultivar for further assessment of both plant development and fruit production.

4. Accession 2(II) had the highest reported fruit count, at 56. It was also recorded with seven flowers and five ripe fruits, giving it the strongest result for total fruit number among the entries evaluated.

5. Lyachka produced 13 fruits, including 10 ripe fruits, the highest ripe-fruit count reported. This observation supports its consideration as promising material for fruit maturation during the observed period; confirmation of its early-ripening character would require observations across defined dates and growing seasons.

6. Based on the recorded traits, accession 2(II), Maravilla and Lyachka were identified as promising material for further evaluation and possible cultivation. Their respective strengths were the highest fruit count, the highest branch count together with notable fruit production, and the highest ripe-fruit count.

7. These conclusions reflect the field observations reported in this study. Further replicated trials, complete measurements for all traits and harvest-based yield assessments would help confirm the relative performance and suitability of these cultivars and accessions for cultivation.

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