‘Ruiyang’, A Late-ripening Apple

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Additional index words. Chinese apple, fruit breeding, fruit quality

‘Ruiyang’ is a new late-ripening apple cultivar notable for its high fruit quality and good productivity. ‘Ruiyang’ originated from a controlled cross of ‘Qinguan’ × ‘Fuji’. Similar to ‘Qinguan’, ‘Ruiyang’ has a spreading habit and high resistance to Marssonina leaf blotch [Marssonina coronaria (Ell. et Davis) Davis]. Unlike ‘Fuji’, ‘Ruiyang’ has consistent high productivity with precocious fruit bearing and no tendency to biennial bearing. The fruit is medium-large with a smooth, uniform dark-red skin color. The fine, crispy and juicy flesh is yellowish-white with an excellent flavor. The taste is similar to ‘Fuji’ but slightly sweeter and more fragrant. It has a long storage capacity and shelf life. The aim of this work is to provide detailed information on the new apple cultivar Ruiyang, including habits, fruit quality, disease resistance, and a comparison to its parent cultivars.

Table 1. Average values of the physico-chemical parameters detected on ‘Ruiyang’ apples under cold-storage condition of cold storage.

| Varieties | Storage time (d) | Firmness kg/cm² | SSC % | TAC mg/100 g | Vit C mg/100 g |
|-----------|-----------------|------------------|-------|--------------|----------------|
| Ruiyang   | 0               | 7.21             | 16.5  | 0.28         | 8.83           |
|           | 90              | 6.27             | 17.7  | 0.27         | 8.75           |
|           | 180             | 5.89             | 16.3  | 0.24         | 8.30           |
| Fuji      | 8.33            | 13.9             | 0.32  | 8.27         | 6.24           |
|           | 90              | 6.24             | 15.7  | 0.21         | 8.18           |
|           | 180             | 5.78             | 15.1  | 0.17         | 7.76           |
| Qinguan   | 9.66            | 14.2             | 0.27  | 9.15         | 6.79           |
|           | 90              | 6.59             | 15.6  | 0.23         | 8.86           |
|           | 180             | 5.37             | 14.5  | 0.21         | 8.14           |

SSC = soluble solids concentration; TAC = titratable acid concentration; TSC = total sugar concentration; Vit C = vitamin C.

Fig. 1. Average values of the physico-chemical parameters detected on ‘Ruiyang’ apples under cold-storage conditions.
germinated. In 2005, 2365 seedlings were obtained. In 2009, ‘Ruiyang’, named as ‘6B1-4’ at that time, was selected from a population of seedlings derived from its parents and other populations, and it was chosen for its attractive red color, excellent fruit quality, and good growing habit. In 2010, a 4-year evaluation of tree growth yield and fruit quality of ‘6B1-4’ was carried out in the major apple production areas of China. After evaluation and approval by the Fruit Cultivar Approval Committee of Shaanxi Province, ‘6B1-4’ was named ‘Ruiyang’ and released in 2015, detailed reports about ‘Ruiyang’ first published in foreign countries.

Table 2. Yield of ‘Ruiyang’.

| Region     | Baishui (kg/ha) | Xunyi (kg/ha) | Fufeng (kg/ha) |
|------------|-----------------|---------------|---------------|
|            | Ruiyang         | Qinguan      | Fuji          | Ruiyang         | Qinguan      | Fuji          | Ruiyang         | Qinguan      | Fuji          |
| 2012       | 16,541.6        | 18,209.1      | 2,467.9       | 13,740.2       | 12,539.6      | 1,800.9       | 14,740.7       | 18,342.5      | 3,335.0       |
| 2013       | 91,779.2        | 94,914.1      | 14,807.4      | 77,772.2       | 79,106.2      | 13,806.9      | 84,508.9       | 100,850.4     | 53,360.0      |
| 2014       | 135,601.1       | 126,796.7     | 74,904.1      | 112,056.0      | 105,386.0     | 68,167.4      | 143,938.6      | 131,665.8     | 100,050.0     |
| Average    | 81,307.3        | 79,973.3      | 30,728.7      | 67,853.9       | 65,679.5      | 27,927.3      | 81,060.5       | 83,621.8      | 52,246.1      |

Baishui is in the south of Loess Plateau (lat. 109°16’ to 109°45’ E; long. 35°4’ to 35°27’ N). Xunyi is in the west-middle of Shaanxi (lat. 108°08’ to 108°52’ E; long. 34°57’ to 35°33’ N). Fufeng is in the west-middle of Shaanxi (lat. 107°87’ E; long. 34°37’ N).

Description

Tree. According to Apple Descriptor (Watkins and Smith, 1982), ‘Ruiyang’ exhibits intermediate tree vigor with a spreading/drooping habit when grafted on M.26. The trunk is smooth, gray-brown (410C), and the branches are purple brown (411C). One-year-old shoots are upright, reddish brown (483C) with medium-dense, small, mounted, round lenticels, and their internodes are 20.3 mm long. Pubescence on young and autumn shoots is medium. The vegetative buds are triangular, small in size, and moderately pubescent, whereas flower buds are plump, wedge-shaped, and pubescent.

Leaf. The leaf is oval, medium-thick, small, and 7.95 cm long and 4.35 cm wide; the color of its upper surface is green (357C), and the lower surface is pubescent. The blade margin of the leaf is serrated, and the altitude in relation to the shoot is less than 90°.

Fruit. The physical appearance of ‘Ruiyang’ has a number of advantages over ‘Qinguan’ and ‘Fuji’ (Wang, 2016), including more regular fruit shape and smooth, attractive, uniform red skin color. ‘Ruiyang’ also has a much better fruit texture than its parent ‘Qinguan’. In short, ‘Ruiyang’ has many advantages over its parent cultivars, including good taste and fragrance and improved shelf life. Therefore, it has great potential to compete and reduce the quantity of ‘Fuji’ on the market.

The fruit shape is medium-conical with a fruit shape index of 0.84 (Watkins and Smith, 1982). The fruit is medium-large in size with an average fruit weight of 282.3 g. Skin color is bright dark red (711C) over...