

'Cheonhong', a Nectarine with Resistance to Fruit Cracking and Russeting

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ABSTRACT 'Cheonhong' was released by the National Horticultural Research Institute in 1992 as a new mid-ripening, yellow-fleshed, and freestone nectarine variety, which originated from open-pollinated seeds of 'Garden State' nectarine collected in 1978. This was tested as 'Wonkyo Da-03' at 4 areas for 4 years from 1989. 'Cheonhong' is resistant to fruit cracking during rainy season and russeting. Fruits mature about 15 days before 'SunGlo' and have rich-flavor and good quality.

Additional key words: freestone, fruit breeding, mid-maturing, nectarine, new variety, yellow flesh

Introduction

In Korean temperate fruit production, peach (including nectarine) is the fifth important deciduous fruit following apple, grape, pear, and persimmon. Total peach cultivation area was 10,892 ha, and annual production was 146,793 metric tons in 1997 (Ministry of Agriculture and Forestry, 1997). Although peaches were produced in almost all provinces except for Cheju province, Kyongbuk is the major production province occupying about a half of national peach production, 53.9%.

Although Horticultural Experiment Station (HES), the former organization of National Horticultural Research Institute (NHRI), located in Suwon, Kyonggi province has released 2 white-fleshed peach varieties of 'Yumyeong' and 'Baekmijosaeng' since authentic fruit breeding programs began in 1957, no nectarine variety was released by HES and NHRI (Kang et al., 1986; Kim et al., 1978). Korean nectarine growers had to depend on foreign varieties, such as 'Shuho', 'Okitsu', and 'SunGlo'. However, fruit cracking and russeting under hot and humid condition have been considerable problems in these nectarine production. In addition, small fruit size and low sugar content are general defects of these nectarine varieties.

To solve these problems, NHRI released a new nectarine variety, 'Cheonhong' in 1992. 'Cheonhong' is a mid-ripening (late July to early August), yellow-fleshed, and freestone nectarine.

Material and Methods

In 1978, open-pollinated seeds of 'Garden State' nectarine were collected by W. C. Kim at Horticultural Experiment Station in Suwon. Young seedlings were transplanted at breeding block in 1980 and then had been evaluated until 1987.

78-GSN OP-12 was preliminarily selected by S. J. Kang in 1987 and then the selection was named as 'Wonkyo Da-03' for regional adaptability test. Three top-grafted trees were used for the test at Suwon (western middle part of Korean peninsula), Naju (southwestern part), Taegu (southeastern part), and Kyungsan (southeastern part) from 1989 to 1992.

Data on fruit and ecological characteristics, physiological disorders (fruit cracking, russeting), and resistance to bacterial leaf spot and brown rot were gathered from test research institutions. Other characteristics of fruits and tree were investigated at breeding block in HES.

Origin

'Cheonhong' nectarine variety [*Prunus persica* (L.) Batsch] originated from open-pollinated seeds of 'Garden State' nectarine collected in 1978 at Horticultural Experiment Station at Suwon (Fig. 1). In 1987, 'Cheonhong' was selected preliminarily and then tested as 'Wonkyo Da-03' at 4 areas for 4 years from 1989. In 1992, it was named and released.

Description

'Cheonhong' ripens 100 to 105 days after full bloom, typically in late July in southern area of Korean peninsula and in early August in middle part, about 2 weeks before 'SunGlo' (Table 1). Flower with large, dark pink petals is showy type and are self-fertile with abundant pollen grains. The shape of leaf glands is reniform. Trees are relatively vigorous and productive.

The fruit is about 250g in weight, larger than any other nectarine varieties, and content of soluble solids is about 12.0 °Bx. At maturity, fruit surface is flushed with solid dark or purplish red over yellow ground color. Flesh is yellow with some red around pit cavity (Table 2). The melting flesh has rich flavor and good quality.

'Cheonhong' is not resistant to brown rot [*Monilinia fructicola* (Wint.) Honey], but seems to be moderately resistant to bacterial leaf spot [*Xanthomonas campestris* pv. *pruni* (Smith) Dye]. However, 'Cheonhong' is resistant to fruit cracking and fruit russeting, and therefore fruits can be free from these physiological disorders under non-bagging condition.

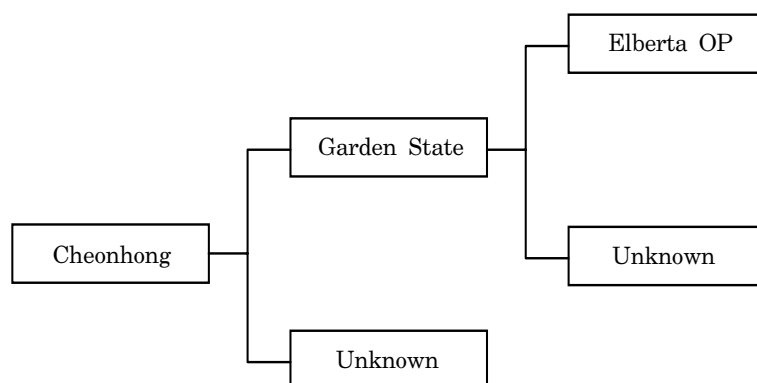


Fig. 1. Pedigree of 'Cheonhong' nectarine.

Table 1. General characteristics of 'Cheonhong' nectarine.

Variety	Full bloom date	Flower type	Flower size	Leaf glands	Fruit maturity	Flesh adherence to pit	Pollen grains
Cheonhong	16 Apr.	showy	large	reniform	early Aug.	freestone	abundant
SunGlo	15 Apr.	non-showy	small	reniform	mid Aug.	freestone	abundant

Table 2. Fruit characteristics of 'Cheonhong' nectarine.

Variety	Fruit weight (g)	Soluble solids (°Bx)	Texture	Acidity
Cheonhong	250	12.0	melting	medium
SunGlo	230	11.8	melting	medium

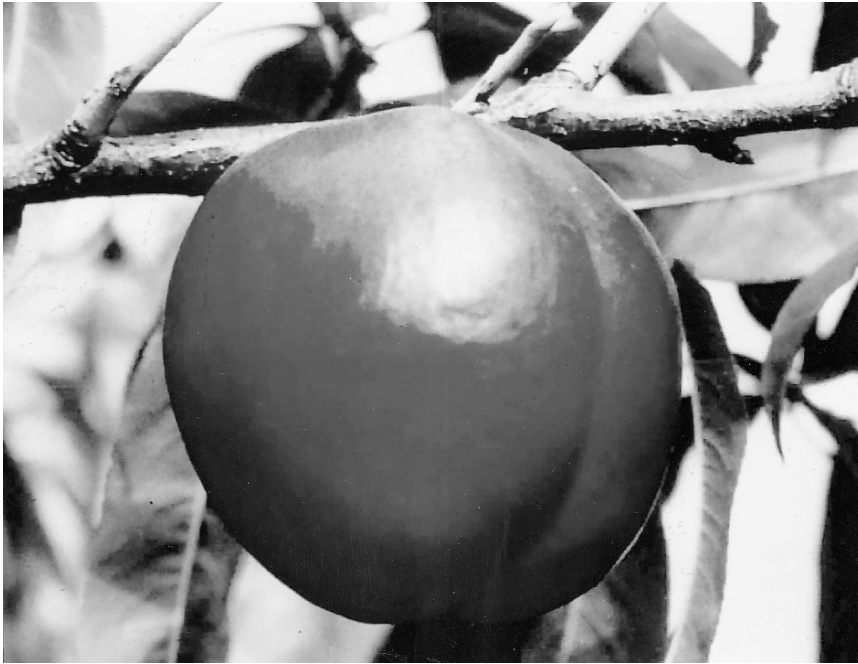


Fig. 2. Ripe fruit of 'Cheonhong' nectarine.

Availability

Limited amounts of virus non-indexed budwood may be obtained from National Horticultural Research Institute. Trees are also available from commercial nurseries in Korea.

추가 주요어 : 과수육종, 신품종, 이핵성, 중생종, 천도, 황육종

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裂果 및 銅銹發生 없는 天桃 '天紅'

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초 록

'天紅'은 농촌진흥청 원예연구소에서 1978년에 'Garden State' 천도복숭아의 자연교잡종자로부터 유래된 황육, 중생, 대과성 천도 품종으로, 1987년에 1차선발하여 1989년부터 4년간 '원교 다-03' 계통명으로 지역적응성을 검토하고, 1992년에 최종선발 및 명명된 천도 품종이다. 이 품종은 성숙전 강우에 의한 열과가 없고, 동녹 발생이 적으며, 천도계 품종으로서 당도가 높아 품질이 우수하다.