at least until 1929 and reported on many new fruit varieties during the intervening 35 years.

It seems to me from, Taylor's account, that it is unlikely that 'Delicious' is a seedling of 'Yellow Bellflower.' Moreover, I believe to be apocryphal all suggestions that Hiatt forecast any attributes of 'Delicious,' that the stock was repeatedly cut back or that it was out of the row, or that Hiatt ever said of it (2, 3), "If thee must live, thee may." As Upshall (6) concluded his preface, "Very occasionally, if seedlings are used as rootstocks, a desirable new variety can develop if the scion is killed or broken off and the seedling becomes the tree." I think this is the true origin of 'Delicious,' and would speculate that Upshall may have had this specific example in mind as he wrote.

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Evaluation of Vineyard Peach as a Peach Rootstock

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Abstract

The vineyard peach population of Serbia, Yugoslavia is being sampled and trees selected for propagation and testing. Results thus far indicate that there is a high degree of genetic diversity in this population of peaches, some with tolerance to cold and disease stress. Differences have been found in tree vigor, fruit quality, fruit size, yield, seed germination, and vigor of the seedlings. Twelve of 44 selections have been selected for further testing. Several selections including MG/62/87 and GR/65/87 are particularly desirable in regards to regular and abundant cropping of the mother trees as well as a high percentage of seed germination and seedling vigor.

Introduction

The peach, *Prunus persica* (L.) Batsch originated in China. Peach culture spread through Persia, Turkestan, and the Caucasus to the Mediterranean basin, North and South America, Southern Africa and Australia (1, 5). The peach was introduced to Greek culture in the time of Alexander the Great between 400 and 300 B. C. It was introduced in the area of today Macedonia and Serbia shortly after the beginning of Christianity (1, 2).

Based on production, the peach is in eighth place among fruits and third place among deciduous fruits in the world. Italy (1,533.000 mt, 1981/85) is first in world peach production followed by the USA, Greece, Spain, and France (5).

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The predominant peach cultivars grown worldwide, were developed in the USA. However, the genetic diversity of these cultivars is limited (6). Primitive cultivars and wild species could play an important role in peach improvement (6, 8), Seedling and clonal rootstocks are both used for peaches, with seedlings being more common.

The vineyard peaches are seedling populations of the peach, *P. persica* grown particularly in old vineyards in Serbia and Macedonia and to some extent in other parts of Yugoslavia. The vineyard peaches have propagated by seeds from times immemorial.

Vineyard peach seedlings are the main rootstocks in Yugoslavia (3). Such rootstocks are particularly useful on sites where peaches are replanted following peaches. The majority of vineyard peaches in Yugoslavia are edible and it ripens in September. The native vineyard peach populations described in this study are significant resources of fruit germplasm in Yugoslavia (2, 4, 7).

Urbanization and expansion of agricultural development has destroyed a significant part of the vineyard peach population. For that reason, exploration, collection, maintenance, preservation, and evaluation of vineyard peaches is a critical task in order to insure the preservation of this germplasm for use in current and future breeding programs. The objective of this investigation was the collection and evaluation of Yugoslavian vineyard peach populations.

Materials and Methods

During the period 1984-1988, at least 550 old vineyards in Serbia were sampled for promising vineyard peach genotypes. Trees were evaluated for the ability to crop under cold or drought stress, field resistance to *Taphrina deformans* (Berk.) Tul., *Fusicladium carpophilum* (Thuem.) Oud., *Sphaerotheca pannosa* (Wallr.) Lev., and *Monilinia fructicola* (Wint.) honey, tree vigor and fruit yield, ripening date, size, and quality. Budwood and seeds were collected from each

Table 1. Characteristics of some more important Yugoslavian vineyard peach selections.

Selection	Flesh color[x]	Stone adherence[y]	Mean fruit weight (g)	Mean weight of pits (g)	Yield per tree (kg)	Pits (No.)	Seed germination (%)
PKB-13	yw	sf	36.0	4.5	4.4	640	35.6
PKB-15	w	f	32.0	4.5	8.1	600	48.3
PKB-19	w	f	28.5	4.3	16.0	600	59.2
PKB-19	w	f	53.5	5.3	10.5	552	71.9
K/5/86	w	f	57.2	4.7	20.0	30	43.3
O/23/86	w	f	—	—	25.0	30	83.3
MG/62/87	y	f	35.4	6.2	45.0	136	106.6[z]
GR/65/87	y	f	38.8	6.3	60.0	196	103.1
VS/67/87	y	f	44.2	8.5	30.0	83	95.2
M/69/87	w	f	49.6	9.3	50.0	69	97.1
MG/62/87[+]	y	f	41.5	5.5	25.0	122	97.5
GR/65/87[+]	y	f	44.5	5.0	35.0	238	95.0
L/104/88	w	f	40.0	4.3	80.0	221	96.0
R/105/88	w	f	38.5	5.0	50.0	120	51.7

[x]w = white, y = yellow, yw = cream.
[y]f = freestone, sf = semi-freestone.
[z]Percentages over 100 indicate multiple seedlings resulting from a single pit (stone).
[+]The same selection as before, but seeds collected in 1988.

Table 2. Vigor and canopy of peach scion cultivars 'Maya' and 'Vesna' on seedlings of vineyard peach selection at Vinča, Beograd, Yugoslavia.

Cultivar	Rootstock selection	Planted in spring	Trees (no.)	Mean diameter of trunk (mm)		Mean canopy (1988) (cm)	
				1987	1988	Height	Diameter
Maya	PKB-13	1987	20	20	36	147	199
	PKB-15	1987	20	25	46	175	223
	PKB-18	1987	20	23	41	165	214
Vesna	PKB-13	1987	20	21	38	154	182
	PKB-15	1987	10	22	40	142	182

selected original vineyard peach trees for propagation and testing. Seeds were stratified, planted in a nursery and evaluated for germination percentage vigor, field resistance to *T. deformans* and *Agrobacterium tumefaciens* (Smith et Townsed) Conn, and graft compatibility with two commercial peach scion cultivars, 'Maya' and 'Vesna' (4).

Results and Discussion

Forty-four vineyard peaches were selected during the 5-year sampling period. Of these 44, twelve have been identified as promising for further study (Table 1). Most of the 32 were not selected, were discarded due to irregular or low cropping of the mother trees in some years as well as a poor percentage of seed germination and susceptibility of the seedlings to *A. tumefaciens* under nursery conditions.

The vineyard peach shows a wide range of diversity in the characters evaluated. Flesh color was white to yellow, mean fruit weight ranged from 10.1 g to a high of 57.2 g, yield per tree ranged from 4.4 to 80 kg, and germination percentage ranged for 0 to over 100 percent with some phenotypes producing more than 1 seedling per seed. Vigor of the vineyard peach also ranges from those which appear to be semi-dwarf to trees of very high vigor. Preliminary evaluations indicate that these differences in vigor may be apparent in seedlings in the nursery row.

Particular climatic conditions that occurred during the course of this study allowed for the selection of trees with specific traits. For example, unusually low temperatures in January 1987, which ranged for -13°C to -29°C across Serbia were followed by severe drought from July to September 1987. In this year the selections MG/62/87 and GR/65/87 had good crops and good tree health.

Selection K/5/86 was selected in the Serbian region of Vlasotince where *F. carpophilum* is widespread. This selection appears to have a high level of resistance to this pathogen.

Several selections including PKB-13, PKB-15 and PKB-18 produced good young trees with no crowngall following budding with peach cultivars 'Maya' and 'Vesna' in the nursery 1985.

'Maya' and 'Vesna' on different vineyard peach rootstock selections have shown different vigor (Table 2).

Summary

Results of this study thus far indicate that Yugoslavian vineyard peaches provide a reservoir for selection of new genotypes, which may be useful for not only rootstocks but potentially for scion cultivars. Selections differ notably in productivity, vigor, seed germination, and disease resistance. This report is part of a long-term project which began in 1976 and will continue.

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The Evaluation of Early Yield of Nine Untested Strawberry Genotypes[1] in New Brunswick, New Jersey: 1986-1987

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Abstract

In spring, 1986, 8 early NJUS selections, 1 MDUS selection and 'Earliglow,' 'Raritan' and 'Lester' were established in a cultivar evaluation trial in New Brunswick, New Jersey. Results indicate good yield and adequate to excellent size for MDUS 5122, NJ8256-1, NJ8237-1 and NJ8230-1. Further testing is needed before grower recommendations are made.

The New Jersey commercial strawberry industry has been thriving for at least fifty years, with many of the berries historically sold wholesale through auctions located in Vineland, New Jersey or Philadelphia, Pennsylvania. During the 1970's, the pick-your-own method of marketing became predominant (4). However, the face of the New Jersey industry has undergone further changes, similar to those throughout the Northeast and Midwest, with strawberries often marketed through retail or specialty markets (2, 4). These markets require genotypes which will span as large a time fame as possible, with early bearing types often demanding higher prices. Strawberry breeding programs at the United States Department of Agriculture, Beltsville, Maryland (USDA) and at Rutgers University, New Brunswick, New Jersey, have produced many promising genotypes which have potential for expanding the industry in New Jersey, and in neighboring states. The objective of this research was to evaluate yield parameters of these new early selections.

'Earliglow' and 'Raritan' were used as named cultivar comparisons in the

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