

similar cells occur more frequently under other experimental conditions or with other cultivars.

Aneuploid and diploid cells may have originated in atypical sporads, i.e., diads, hexads, octads, and decads, which were evident in squashed 'Sungold' anthers. Diploid and polyploid cells may have originated in either somatic tissues or spores, but haploid cells probably originated in developing microspores; more extensive studies would be required to verify origins of each cell type. Haploid, diploid, aneuploid, and polyploid cells in anther calluses are potential sources of peach plants with corresponding ploidy levels. Realization of this potentiality will depend upon development of systems in which peach plants can be regenerated from these cells or calluses.

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ORIGIN AND DESCRIPTION OF 'DORSETT GOLDEN' APPLE

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Abstract. The introduction of 'Dorsett Golden' apple into Florida and its possible origin are discussed. This cultivar has been shown to be a pollinator for 'Anna'. It is an excellent eating quality fruit in its own right. A description of 'Dorsett Golden' is given because of confusion with other apples of the same or similar name.

The 'Dorsett Golden' apple is growing in popularity because it serves as a pollinator for 'Anna', and is a delicious fruit in its own right. The increased interest in home gardening and local market sales has resulted in about one half-million apple trees being produced and sold in Florida between 1971 and 1981. About one-third of these were 'Dorsett Golden', despite there being no knowledge about its performance until 1976.

Origin

'Dorsett Golden' originated from a seed planted in 1953 by Mrs. I. Dorsett of Nassau, New Providence Islands, Bahamas (1). It is said to be a chance seedling of 'Golden Delicious', however this is doubtful because of its low chilling requirement. For example, chilling is known to be controlled by many genes, perhaps 10 to 20. We have observed thousands of Golden Delicious seedlings without finding any that were near the extreme low chilling requirement of 'Dorsett Golden'. For low chilling to occur in so many genes simultaneously and produce 'Dorsett Golden' would be very unlikely. Based on acceptable single gene mutation rates of one in ten thousand to one in every hundred thousand, the probability of 2 genes mutating together at the low mutation rate would be one per hundred

million. For 5 genes to mutate simultaneously the chance would be one per hundred quadrillion or (1/10,000)⁵.

Consider the possible origin of 'Dorsett Golden' not arising from a seed of 'Golden Delicious'. A strong case can be made that it originated from the germplasm of Mr. Stein at the 'Ein Shemer' Kibutz (1) or from another breeding program in Israel (5). Extremely low chilling apples are unknown outside the local Arab types available in northern Egypt and Israel (5, 7, 8). The 'Golden Delicious' cultivar was used in apple breeding by Stein and Oppenheimer in Israel and would account for 'Dorsett Golden's' resemblance of 'Golden Delicious' in shape and color. It is our speculation that a world traveler obtained fruit of this germplasm, probably as a result of visiting in Israel, and brought seed to Nassau where it was planted. 'Dorsett Golden' was assumed to be a seedling of 'Golden Delicious' either because the fruit from which the seed was taken was mistaken for 'Golden Delicious', or because the fruit from the seedling so resembled 'Golden Delicious'. While this is pure speculation, the odds of this happening appear to be far greater than chance mutation simultaneously of many chilling requirement genes.

'Dorsett Golden' was introduced into the United States in 1961 and about 2000 to 3000 trees were propagated in the Miami area during the 1960's by Newcomb Nursery. It was obtained for testing in Gainesville in 1973 from B. C. Bowker of Miami and in 1974 from Dr. R. J. Knight of the Plant Introduction Station at Miami. It should be noted that several clones with the same or a similar name have been distributed in Florida (4, 6), but that most 'Dorsett Golden' plants sold since 1977 have been traced to budwood distributed by the Fruit Crops Department of the University of Florida.

Description

Fruiting of 'Dorsett Golden' was seen on 2 grafted trees at the University Horticulture Farm in 1975. Its low chilling requirement and high fruit quality were immediately recognized and test plantings were established for additional observations. 'Dorsett Golden' has bloomed con-

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sistently with 'Anna' at Gainesville following both warm and cold winters and pollination tests show that they cross-pollinate each other readily (2, 3).

The 'Dorsett Golden' apple ranges in color from a pale to a light yellow, and often has a pinkish or light red blush similar to that of 'Golden Delicious'. The blush varies covering 10 to 40% of the apple and becomes more intense with cooler nights during the last month before harvest.

The fruit size is dependent on crop load but averages 150 g (5.5 oz) or slightly smaller than 'Anna'. Fruit in large clusters will be smaller. 'Dorsett Golden' fruit are regular in form, mostly round to slightly oblong. Fruit lenticels are scarce and inconspicuous. When fully ripe, the flesh is medium firm and slightly crisp. The fruit has a mild apple aroma, is of medium sweetness and is slightly sub-acid.

The trees are highly precocious and begin flowering in the field the second year even on seedling rootstock. Precocity inducing dwarf rootstocks that are commercially available are not adapted to the warm south where they exhibit burrknot. On mature trees at Gainesville, bloom period occurs over approximately 2 weeks from late February to early March, and is more concentrated than for 'Anna', which often begins blooming a week earlier and lasts a week later. Young vigorous trees generally flower 1 to 2 weeks later than older mature trees. The flowers are large, numerous, showy, light pink in the bud stage and white when fully opened. Pollen is light yellow and very abundant.

Based on observations with peaches, the estimated hours of chilling for dormancy requirements is about 300. Both 'Dorsett Golden' and 'Anna' are not as dependent on chilling as peaches in that they will fruit satisfactory with 200 hours or slightly less. When chilling is less than 300 hours, time of bloom and ripening will be delayed. Where winters are not severe enough to induce dormancy, 'Dorsett Golden'

will grow as an evergreen, flowering and fruiting throughout the year mostly on terminal growth. Fruit set is generally sparse and fruit shape is elongated on trees grown as an evergreen. Evergreen trees have been observed in Homestead and Miami.

Five year old trees at the University of Florida orchards yielded approximately 80 lbs. (35 kg) each. 'Dorsett Golden' is not self-fertile, but sets fruit readily when bee-pollinated from near by trees of 'Anna' (2, 3). Best pollination is assured when 'Anna' is within 100 feet.

'Dorsett Golden' trees are similar to those of Anna being moderately vigorous and upright-spreading. The tree is spur type but sets fruit occasionally on vigorous whips. Lenticels on vigorous young whips are large, whitish, and widely scattered. 'Dorsett Golden' has a high level of resistance to powdery mildew, in contrast to 'Anna' which is very susceptible. Fire blight has never been observed on 'Dorsett Golden' in Gainesville.

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INCIDENCE OF ALGAL DISEASE (CEPHALEUROS SP.) IN SELECTIONS OF GUAVA (PSIDIUM GUAJAVA)¹

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Abstract. A pathogenic green alga, *Cephaleuros*, sp., seriously injures leaves and fruits of guava, *Psidium guajava* L., in southern Florida. Five guava selections in a grove were compared for susceptibility to this algal disease. 'Patillo' and 'Blitch' had a low disease incidence, 'Ruby x Supreme 6-29' was moderately damaged whereas 'Webber x Supreme' and 'Ruby x Supreme 10-30' showed the most disease.

Among the several algae which live on or within vascular plants, *Cephaleuros* is the most damaging. *Cephaleuros virescens* is the binomial commonly applied to the species occurring in Florida; however, the general taxonomy of

the genus has received relatively little attention and no taxonomic study has been made in Florida. Therefore, the pathogen discussed here will be referred to merely as *Cephaleuros* sp. It is one of the green algae and its vegetative stage can be various shades of green. It is often mistakenly called "red rust" because the upper surface of the thallus produces erect, yellow to red filaments and fruiting bodies during the wet summer. Its thallus is made of flat, short, closely crowded, branched filaments beneath which are irregularly branched rhizoids. The most obvious fruiting bodies consist of upright, multicellular filaments bearing 1-8, sharply bent pedicels. Each pedicel bears a pear-shaped or nearly spherical sporangium which eventually emits about 8-32 motile, biflagellate spores.

Approximately 50 hosts have been reported in Florida (4) and depending upon the host, the alga can be harmless or extremely damaging to foliage, branches or fruits. No statistically designed experiment involving measurement of varietal resistance to this pathogen has ever been reported. One observer in India stated that the Assam type of tea appeared to be the most susceptible to algal damage and the 'Manipuri' variety was the most resistant (2). In a Florida tangerine grove, the 'Lee' cultivar appeared to be

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