

S17P11

Evaluation of Lemon Selections for the Deserts of the United States

Wright G.C.¹, and Kahn T.²

¹University of Arizona (Univ of AZ), Yuma Agriculture Center, USA; and ²University of California Riverside, Department of Botany and Plant Sciences, USA. gwright@ag.arizona.edu

New lemon selections suitable for the US desert climate are needed to diversify production. Desert lemons occupy an early-season market niche and are a source of fruit for packinghouses located in the region and in cooler areas. This project was designed to evaluate 12 lemon selections under desert conditions. The objectives are to provide the lemon industry with information on tree growth, yield, packout, and fruit quality characteristics for selections. These include: 'Allen Eureka', 'Variegated Pink-Fleshed Eureka', 'Corona Foothills' (a bud sport of 'Villafranca'), 'Limonera 8A' Lisbon', 'Walker Lisbon', 'Femminello Santa Teresa', 'Interdonato', 'Limonero Fino 49', 'Limonero Fino 95', 'Messina', 'Seedless' lemon and 'Yen Ben'. 'Corona Foothills', 'Limonero Fino 49', 'Walker Lisbon' and 'Femminello Santa Teresa' have heretofore had the greatest yields, while 'Messina', and 'Variegated Pink-Fleshed Eureka' have had the least yield. 'Yen Ben' had adequate yields, but had later maturing fruit than most of the other selections. With regards to fruit packout, 'Messina' had the largest size, followed by 'Corona Foothills', 'Interdonato', 'Limonero Fino 49' and 'Limonero Fino 95'. 'Variegated Pink-Fleshed Eureka' and 'Yen Ben' had the smallest sized fruit. There was little effect of selection upon fruit exterior quality. 'Variegated Pink Eureka', 'Yen Ben', 'Messina' and 'Seedless' had the least number of seeds per fruit, while 'Interdonato' had the most, followed by 'Walker Lisbon', 'Corona Foothills', 'Femminello Santa Teresa' and 'Limonero Fino 49'. 'Interdonato', 'Yen Ben', 'Messina' and 'Seedless' had the smoothest peel, while 'Variegated Pink Eureka' had the roughest. There were significant differences between the selections as to % juice, juice pH, acidity levels and peel thickness.

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Selection and field evaluation of three new cultivars of lemon in the South-east of Spain

Porrás L., Pérez-Pérez J. G., García-Lidón A., Sánchez-Baños M., and Pérez-Tornero O.

Murcian Institute of Agriculture and Food Research and Development (IMIDA), Department of Citriculture, Spain.

ignacio.porras@carm.es

South-east of Spain is the major exporter of lemon for fresh market, being 'Fino' the main group of lemon varieties with more than 80% of the total production. To continue leading the international lemon market it is necessary to incorporate new varieties which improve fruit quality and diversify supply. Three new selections of lemon have been evaluated in a citrus breeding program at IMIDA: 'Finolate', 'Fino Callosa', and 'Garpo', and were compared with 'Fino 49', the most widespread lemon variety in this region. These varieties were originated by spontaneous mutation. Morphological determination were carried out both in leaves and fruits, including leaf size and area, number stomata, petiole length, fruit weight, number of seeds and others. Fruit quality parameters from the three varieties were similar to 'Fino 49', except in rind colour of 'Garpo'. 'Fino Callosa' had the highest yield due to higher number of fruits per tree. 'Finolate' was classified as a late ripening cultivar and their fruits can be easily stored in tree.

S17P13

Preselection of promising triploid mandarin varieties in Corsica

Bouffin J.¹, Froelicher Y.¹, Luro F.², and Ollitrault P.¹

¹Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), Bios / Agap, France; and ²Institut National de la Recherche Agronomique (INRA), Gap, France. jean.bouffin@orange.fr

The selection of seedless mandarin varieties adapted to the European market is one of the main objectives of the CIRAD breeding program. Triploid hybrid creation is the method selected to develop seedless varieties. More than one thousand triploid progenies are currently evaluated at the San Giuliano Research Station in Corsica. There were created by 2x X 2x hybridization exploiting spontaneous 2n gametes. The objective of a first set of crosses with clementine as female parent was to select clementine-like varieties, in order to extend

the production period of this crop in Corsica. Seven hybrids were preselected at the end of the first level of evaluation according to the visual and organoleptic fruit characteristics, the period of production and the yield. There are currently under the second level of evaluation to analyse their agronomic behaviour. One of this hybrids is under D.U.S. examination for the grant of Community plant variety rights. The objective of a more recent second set of crosses is to develop late mandarin varieties. Several progenies, with different mandarins as female parent, present interesting fruit characteristics. One of them, with short juvenile period and very high yield, is preselected for the second stage of evaluation.

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Two new IVIA triploid hybrids of mandarin, 'IVIA-592' and 'IVIA-599'

Cuenca J., Aleza P., Juárez J., Pina J.A., and Navarro L.

Instituto Valenciano de Investigaciones Agrarias (IVIA), Centro de Protección Vegetal y Biotecnología, Spain. jjuares@ivia.es

In citrus there are two clearly differentiated markets: the fresh fruit and the processed juice. In the Mediterranean area, citrus fruits are primarily produced for the fresh fruit market and Spain is the principal producer of the area. Seedlessness is one of the most important characteristics for mandarin fresh fruit. Triploid hybrids allow implementing this trait in commercial varieties. In this work we described 'IVIA-592' and 'IVIA-599', two new triploid hybrids originated from the IVIA triploid breeding program that will be released to growers in 2013. IVIA-592 was obtained from an open pollinated 'Fortune' mandarin. Fruits reach optimum maturity at the beginning of January, although they can be harvested from December until the end of January. Fruits are easy-to-peel with a diameter between 55-60 mm and fruit rind is deep orange red in color. IVIA-599 was obtained from a cross between 'Fortune' and 'Kara' mandarins. Fruits reach optimum maturity at the beginning of February, although they can be harvested from January until second half of February. Fruits are easy-to-peel with a diameter between 60-70 mm and fruit rind is orange red in color. This variety has the same origin as 'Safor', a previously released triploid hybrid. The fruits of the two varieties are somewhat similar, but 'IVIA-599' matures one month earlier. With these two varieties it will be possible to supply similar fruits to the market from January to the end of March.

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Selection of new 'Ponkan' like mandarins

Bastianel M., Cristofani-Yaly M., Schinor E.H., Simonetti L.M., Manente K.K.M., de Negri J.D., Azevedo F.A., and Machado M.A.

Centro de Citricultura Sylvio Moreira, Instituto Agrônomo, Brasil. mbastianel@centrodecitricultura.br

Although the citriculture is one of the most important economic activities in Brazil, it is based on a small number of varieties. To increase the number of varieties/genotypes with potential for commercial growing, either for the industry or fresh market, has been one of the main objectives of citrus breeding programs. There are few available commercial varieties of mandarins being the 'Rio' and 'Montenegrin' (*Citrus deliciosa*), the most produced in the South and Northeast regions of the country, and 'Ponkan' (*C. reticulata*) and 'Murcott' tangor are the most produced in the Southeast region. 'Ponkan' mandarin is preferred by the local market, mainly for easy-peeling greatly appreciated by the consumer. However, besides having a restricted period of harvest, it is susceptible to *Alternaria* Brown Spot (*Alternaria alternata*) which has hindered its maintenance in the orchards. Aiming to offer a larger number of commercial varieties with different harvest periods, more than 200 accessions of mandarins present in the Germoplasm Bank, and more than 200 hybrids generated in the breeding program are being evaluated. We selected about 50 mandarins accessions and two hybrids ('Ponkan' x 'Murcott') that have physical characteristics similar to 'Ponkan' fruits. These materials were evaluated for maturation curves and other characteristics of commercial interest (fruit size, skin color, number of seeds and disease resistance). Differences were observed among tested materials, as fruit characteristics and *in vitro* resistance to *Alternaria*. Promising materials will be established in regional trials for evaluation of production.