California Avocado Society 1965 Yearbook 49: 116-127

HORTICULTURAL ABSTRACTS

COMPILED FROM WORLD LITERATURE ON TEMPERATURE AND TROPICAL FRUITS VEGETABLES • ORNAMENTALS, PLANTATION CROPS

PENNOCK, W., AND OTHERS.

Variedades selectas de aguacates de Puerto Rico. *(Selected avocado varieties in Puerto Rico.)* "Bol. Estac. exp. agric. Rio Piedras, P.R., 172, 1963, pp. 59, bibl. 4 illus.

Descriptions of the fruits of 25 varieties, including oil content, harvesting date and tolerance of cold storage.

GARCIA CABEZON, A.

Variedades neuvas de aguacates obtenidas en Tenerife. *(New varieties of avocado obtained in Teneriffe.)* [English, French and German summaries ¼ p. each.] "Bol. Inst. nac. Invest. agron.,"

Madrid, 1963, 23:203-6.

Descriptions of the fruits of five varieties.

KADMAN, A.

(Germination experiment with avocado seeds.) "Yearb. Calif, Avoc. Soc.," 1963, 47: 58-60.

Three pre-treatments were tested: removing the seed coat resulted in 92.2% germination; cutting 2 cm. from the seed tip in 70.0%; and cutting 2 cm. from the tip and 0.5 cm. from the bottom in 30.0%. With untreated seed the percentage germination was 12.2.—Nat. Univ. Inst. Agric., Rehovot, Israel.

BARRETT, C.

Injertando en el vivero de aguacates. *(Grafting in the avocado nursery.)* "Yearb. Calif. Avoc. Soc.," 1963, 47: 53-5.

An account is given of the raising of rootstocks from seed in California and the subsequent "T" budding with buds taken from near the stem apex.

BEN YA'ACOB, A., AND KADMAN, A.

Rooting of avocado cuttings under artificial mist spray. From abstr. in "Israel J. Bot.,"

1964, 12: 142.

The percentage rooting decreased with increasing age of the parent plant. Terminal cuttings were better than subterminal or basal cuttings, long cuttings (12 cm.) better than short (5 cm.), softwood cuttings were generally better than semi-hardwood and etiolated shoot bases were better than non-etiolated. Plant hormones had a positive effect on root development per rooted cutting but not on the percentage rooting of cuttings. Fifty per cent sunlight was better than full light, coarse vermiculite was better than silica sand as a rooting medium and heated rooting media during winter were better than non-heated.— Volcani Inst. Agric., Beit Dagan.

GASKINS, M. H., AND WINTERS, H. F.

Cold hardiness of avocado seedlings and its association with leaf size and other phenotypic characters. Abstr. in "Proc. Carib. Reg. Amer. Soc. hort Sci., 1962," 1962, 6(10th annu. Mtg): 99.

The hardiest plants in a group of West Indian avocado seedlings tolerated artificially induced leaf temperatures of 18°F. for three hours. The least cold-tolerant plants in the group were injured by temperatures of about 30°F. A significant negative correlation existed between leaf size and cold hardiness, but no visible characters were found to be entirely reliable indicators of cold resistance.—U.S. Plant Introd. Stat.,Fla.

HATTON, T. T., JR., AND REEDER, W. F.

Effects of the December 1962 freeze on Lula and Taylor avocado fruits. "Proc. Fla. St. hort. Soc., 1963," 1964, 76: 370-4. bibl. 10.

After the freeze Lula and Taylor avocado fruits were evaluated for external frost injury, then held at 50, 60 and 70°F. until soft and evaluated again for both external and internal injury. The extent of internal injury was directly related to the extent of external symptoms. Where temperatures were lower fruit injury was more severe. Lula avocados from a cold area softened more rapidly and lost less weight during softening than those from a warmer area. Taylor avocados from both areas ripened at a similar rate and showed similar weight losses. The marketability of slightly injured Lula and Taylor avocados may be rapidly determined by softening samples at 70°F. or higher, while the harvested crop is stored at 50°F.—U.S.D.A., Miami, Fla.

MILLER, M. [P.]

Dry air a factor in sprinkling avocados for frost protection. "Yearb. Calif. Avoc. Soc.," 1963, 47: 37-9, illus.

Temperatures at 8 in. above ground level were recorded under trees sprinkled for frost protection and under control trees during early-morning conditions of low temperature and dry air. Ice formed on the thermistors under sprinkled trees and temperatures were from 0.5° to 6.0°F. lower than those under the control trees. Under such conditions there is serious risk of frost damage, and sprinkling should be continued until the ice is

melting.

MILLER. M. P., TURRELL, F. M., AND AUSTIN, S. W.

Cooling avocado trees by sprinkling. "Yearb. Calif. Avoc. Soc.," 1963, 47: 102-5.

See H.A.,33: 7929.

POPENOE. J.

Nitrogen nutrition of the avocado in South America. "Proc. Fla. St. hort. Soc." 1963, 1964, 76: 353-5, bibl. 1.

In an experiment in South Florida ammonium sulphate and uramite were equally effective as N sources for avocados. Nitrogen applied twice a year at one Ib. per tree per application was inadequate for 12-year-old trees. When, however, an additional application was made, raising the total to three Ibs. N per year, the N content of the leaves was increased and satisfactory yields were obtained—Sub-trop. Exp. Stat., Homestead.

BURNS, R. M., AND OTHERS.

Effects of localized maleic hydrazide sprays on Bacon and Zutano avocado trees. "Yearb. Calif. Avoc. Soc.," 1963, 47: 81-5, bibl. 4, illus.

Mechanically top-pruned 8-year-old trees were mist sprayed with MH at concentrations of 125, 250, 500 and 1,000 p.p.m. plus a wetting agent. There was no inhibition of regrowth, and no significant differences in growth due to the sprays were observed in either variety seven months after treatment. Fruit quality was also unaffected.— Univ. Calif., Riverside.

ZENTMYER, G. A., MUNNECKE, D. E., AND GUSTAFSON, C. D.

Crown gall—new disease of avocado. "Yearb. Calif. Avoc. Soc.," 1963, 47: 61-3, bibl. 3, illus.

Naturally occurring crown gall *(Agróbacterium tumefaciens)* reported on avocado for the first time.

BURNS, R. M., AND OTHERS.

Ventura county avocado soil and root rot survey. "Yearb. Calif. Avoc. Coc.," 1963, 47: 65-72, bibl. 7, illus.

A fuller account of H.A., 34: 5524 listing the various soils and their disease potential. [See also H.A., 32: 7212 and 34: 1414.]

GUSTAFSON, C. D.

An avocado fertilizer program. "Calif. Citrog.," 1964, 49: 212-14. For N and Zn.

KADAMAN, A.

The uptake and accumulation of chloride in avocado leaves and the tolerance of avocado seedlings under saline conditions. "Proc. Amer. Soc. Hort. Sci.," 1963, 83: 280-6, bibl. 12.

Avocado seedlings of eight varieties were grown under saline conditions produced by irrigation with water containing 500 p.p.m. Cl as NaCl. In general, a close correlation was found between the Cl content in the leaves and the degree of leaf scorch, except for the Mexican Gl 7 variety. The seedlings of that variety showed the highest Cl content in their leaves and yet their damage rating was among the lowest. The reliability of the various criteria used for the evaluation of salinity tolerance of avocado seedlings is discussed. (From author's summary.)—Nat. and Univ. Inst. Agric., Rehovot.

BURNS, R. M., AND OTHERS.

Ventura County survey finds little avocado root rot. "Calif. Agric.," 1964, 18(2): 11.

Despite soil conditions favorable to infection by *Phytophthora cinnamomi.*

MIRCETICH, S. M., AND ZENTMYER, G. A.

Rhizoctonia seed and root rot of avocado. "Phytopathology," 1964, 54: 211-13, bibl. 7, illus.

Poor stands of avocado seedlings in the greenhouse were caused by *Rhizoctonia sotaní.* The ability of the fungus to cause seed and root rot of avocado, *Persea americana,* and of the avocado relative, *P. indica,* is reported for the first time. The pathogenicity to avocado of the six isolates used in these experiments ranged from none (citrus isolate) to highly pathogenic (avocado ioslate), but all six isolates were highly pathogenic to *P. indica.* Sanitary measures are suggested for control of the fungus under greenhouse and nursery conditions. (From authors' summary.)-—Univ. Calif., Riverside.

COUSSIN, B. R.

The texture of avocados in relation to the quality of the fruit and its products. From abstr. in "Israel J. Technol.," 1963, 1: 63.

Shear-press and tenderometer values were combined to evaluate the texture of the fruits, and changes in these values were correlated with changes in the total sugar and total fat contents of several varieties during ripening.—Nat. and Univ. Inst. Agric., Rehovot.

KAY, E., AND SCHROEDER, C. A.

*Seasonal regeneration of avocado fruit tissue in vitro. "*Proc. Amer. Soc. Hort. Sci.," 1963, 83; 287-90, bibl. 6.

Tests on avocado pericarp tissue grown in modified Nitsch's media showed that sections from younger fruits proliferated more than sections from older fruits, though horticulturally mature fruits were still capable of regeneration. Of the four levels of temperature tested, 25 degrees C. appeared to be optimal, 20 degrees and 30 degrees satisfactory, and 35 degrees limiting but not lethal. At a given temperature, sections grew better in continuous darkness than in continuous light. (From authors' summary. See also H.A., 33: 2757 and 34: 3561.) — Univ. Calif., Los Angeles.

PERL, M., AND DIAMANT, Y.

The lipase of the avocado: purification and properties of the enzyme. "Israel J. Chem.," 1963, 1: 61, bibl. 1.

BINGHAM, F. T., PAGE, A. L., AND BRADFORD, G. R.

Tolerance of plants to lithium. "Soil Sci.," 1964, 98: 4-8, bibl. 6. illus.

Lithium tolerance of 11 plant species was noted by growing plants in soil treated with lithium sulphate in amounts ranging up to that producing visible injury. Plants known to be readily injured by low substrate levels of Na were likewise readily injured by low additions of Li. Avocados, sour oranges and beans were the plants least tolerant of lithium sulphate. (Vines were slightly more tolerant and) beets were relatively tolerant of high Li additions. Sand culture experiments were conducted with beans, tomatoes and sour orange seedlings to establish toxic Li concentrations in the substrate. Solution concentrations of 5 p.p.m. Li were generally not toxic. It was concluded that irrigation water analysis (approx. 0.05-0.5 p.p.m. Li) does not directly suggest a toxicity. (Authors' summary. See also H.A., 32: 3700.) — Univ. Calif. Citrus Res. Cent.

SCHROEDER. C. A.

High temperature tolerance of fruit tissue. Abstr. in "Proc. Carib. Reg. Amer. Soc. Hort. Sci.," 1962, 1962, 6(10th annu. Mtg): 97.

Tissue temperature tolerance can be demonstrated *in vitro* with a tissue culture technique. Tissue disks are planted on agar nutrient media in vials under sterile conditions. The vials are subjected to a time-temperature exposure and incubated at an optimal temperature, Survival and growth rates are indicated by cell division and weight increase. Avocado tissue survived 100% following six hours at 46 degrees C. and one hour at 50 degrees C. Pre-treatment by exposure to sublethal temperature (52 degrees C.) increased subsequent tolerance to higher temperature (57 degrees C.). Increase in exposure time to a high temperature reduced total growth *in vitro.* Tissue temperatures of unprotected fruit *in vivo* are above the air temperature. Surface color is an important factor in the temperature level of the pericarp. (See also H.A., 32: 3648 and 34:

3561.)—Univ. Calif., Los Angeles.

POPENOE, W.

Early history of the avocado. "Yearb. Calif. Avoc. Soc.," 1963, 47: 19-24.

Its discovery by Spanish explorers in tropical America and early travellers' reports.

STOREY, W. B., AND BERGH, B. O.

Some interesting early-maturing avocados. "Yearb. Calif. Avoc. Soc.," 1963, 47: 87-101, bibl. 5, illus.

Details are given of the varieties Arturo. Ettinger, Stewart, Yama and eight CRC selections.

ZENTMEYER, G. A., THOR, W. A., AND BURNS, R. M.

The Duke avocado. "Yearb. Calif. Avoc. Soc.," 1963, 47: 28-36, bibl. 11. illus.

The origin and characteristics of this California variety are described. It is not widely grown because of doubtful quality and yield. It has, however, considerable cold and wind resistance, some resistance to root rot (see H.A., 32: 1639 and 3645) and may be suitable as a rootstock.

POPENOE, J.

The Ruehle avocado, a new summer avocado for south Florida. "Circ. Fla. Agric. Exp. Stats.," S-144, 1963, pp. 4, illus.

HOPE, T.

Quality tests identify best avocados. "Qd. Agric. J.," 1963, 89: 657-60.

Thirteen varieties grown in Queensland are described. Edranol, Fuerte. Hass, Hazzard and Sharwil were selected for high oil content and quality. Numerous seedling avocados were also tested but were mostly unsatisfactory.

DICKINSON. T. A.

Effective use of chelates in Orange County. '"West. Fruit Gr.," 1963, 17(11): 24-5.

Chlorosis in avocado trees was corrected for 2-3 years by applying Sequestrene 138 Fe (6% metallic Fe) below a leaf mulch around the skirts of the trees and watering it in. Recommended dressings are ¼ lb. chelate for trees up to four years old, ½-1 lb. for five-to-nine year old trees and 1-1½lb. for trees of 10 or more years.

OLSON, E. O.

Association in young avocado trees of azteca disease with sun-blotch virus. "J. Rio Grande Valley Hort. Soc.," 1963, 17: 130-2, bibl. 4.

Twenty-nine months after planting, sun-blotch symptoms occurred in Lula and R-1 (Mexican race) trees but not in Arsola 29-9 (Mexican x West Indian hybrid) trees on Diaz (Mexican x West Indian hybrid) rootstocks in a planting of these three varieties on four seedling avocado rootstocks: West Indian, Diaz, Lula and Guatemalan. It thus appeared that the sun-blotch virus was seedborne in Diaz, and that both Diaz and Arsola 29-9 were symptomless carriers. The causal agent of azteca disease of West Indian rootstocks was associated with or identical with sun-blotch virus carried by Arsola 29-9 and Diaz selections. (From author's summary.)—U.S.D.A., Weslaco, Tex.

ZENTMYER, G. A., AND MIRCETICH, S. M.

Saprophytism and persistence in soil by Phytophthora cinnamomi.

From abstr. in "Phytopathology." 1963, 53: 1145.

The fungus was recovered from a small percentage of dead avocado roots in sandy loam soil stored for 6 years at 20-23% moisture at 20 degrees C., but was not recovered after more than one month's storage of soil dried to 5-6% moisture. The fungus persisted for 10 years in naturally infested soil replanted to macadamia and avocado seedlings, but it persisted for only one year when this soil was transplanted to sweet and sour orange seedlings. The fungus invaded wheat straw and dead avocado roots in sterile and non-sterile soils and was recovered at the end of an 80-day storage period. Invasion and per-inhibitor of ethylene stimulation was present in the tree. Sensitivity to ethylene in mangoes and bananas increased after harvest until the fruit tissue become able to respond to endogenous ethylene. (See also H.A., 32: 7340.)—Univ. Miami, Fla.

Resistence were higher at 16% than at 8% moisture content. (See also H.A., 32: 7211 and earlier.)—Univ. Calif., Riverside.

ZENTMYER, G. A.

Biological control of Phytophthora root rot of avocado with alfalfa meal. "Phytopathology," 1963, 53: 1383-7, bibl. 22, illus.

Alfalfa meal, mixed with soil at rates of 1-5%, gave good control of *Phytophthora* root rot of avocado seedlings as well as root rot and stem canker of *Persea indica.* Other amendments were generally ineffective, with the exception of cotton waste. It was important to mix alfalfa meal with soil infested with *Phytophthora cinnamomi;* a surface mulch was not effective in disease control. The great increase in microbial populations with addition of alfalfa meal is apparently a factor in the biological control of *Phytophthora* root rot. (Author's summary.) —Univ. Calif., Riverside.

BARRON, E. J., AND STUMPF, P. K.

Fat metabolism in higher plants. XIX. The biosynthesis of triglycerides by avocado-mesocarp enzymes. "Biochim. biophys, Acta," 1962, 60: 329-37, bibl. 26.

The major site of synthesis of glycerides appeared to reside in microsomal particles isolated from the tissue. The pathway is essentially the same as that in mammalian tissues. Monoglycerides appeared during the reaction. Evidence is presented which indicates that the monoglycerides arose from the action of phosphatidic acid phophatase on lysophosphatidic acid. A glycerolkinase was also found to be present in the tissue. (From authors' summary.)—Univ. Calif., Davis.

SCOTT, F. M., BYSTROM, B. G., AND BOWLER, E.

Persea americana, mesocarp cell structure, light and electron microscope study. "Bot. Gaz.." 1963, 124: 423-8, bibl. 19, illus.

Cell wall structure, protoplasts, plasmodesmata, oil cells and the distribution of cellulose, pectic substances, lignin, suberin, oil and starch in avocado fruit pulp.

SCHROEDER, C. A.

Induced temperature tolerance of plant tissue in vitro. "Nature," 1963, 200: 1301-2, bibl. 8.

Experiments are described in which avocado pericarp tissue in culture was pretreated by exposure to 45 degrees, 50 degrees, or 52 degrees C. for 10 minutes followed by incubation at 25 degrees for three days. Subsequent exposure to 55 degrees for 10 minutes was then survived whereas non-pretreated tissue was killed. When the pre-treatment temperature time was increased the tissue became damaged. In other experiments a pretreatment of 2-3 min. at 50 degrees was sufficient to enable the tissue to tolerate 55 degrees for 10 min. after three days' incubation. These results suggest the accumulation of a substance or the development of a condition which provides protection and which reaches a maximum about four days after pretreatment and then declines.—Univ. Calif., Los Angeles.

AKAMINE, E. K.

Treatment of avocados for export. "Hawaii Fm. Sci.," 1963, 12(3): 4-5, illus.

Mature fruits of 28 varieties, harvested during different seasons, were treated with methyl bromide at two lb. per 1,000 cu. ft. for four hours at atmospheric pressure and a minimum fruit temperature of 70 degrees F. After treatment, the fruits were stored at 45 degrees for six days to simulate shipping conditions, and then remove to room temperature for ripening. Only five of the varieties tested were not adversely affected by this treatment. These were Kashlen, Kahalu, Lehua, Coban and Itzamna. Fruits which were only mildly pitted or scalded, however, ripened normally on removal from cold storage. Fumigation with several other compounds, treatment with EDB- and ethylene

chlorobromide-water dips, gamma irradiation, vapor heat and low temperature and freezing treatments all failed to kill insect pests or damaged the fruit.

SOSNICK, S. H.

Optimal cooperative pools for California avocados. "Hilgardia," 1963, 35: 47-84, bibl. 31.

A detailed study of methods of paying growers who market their fruit through cooperatives.

FRANCIOSI TIJERO, R.

Cultivo del palto. *(Avocado cultivation)* "Bol. téc. Minist. Agric.,

Lima," 52, 1964, pp. 24, bibl. 17, illus.

The characteristics of *Persea americana* and *P. drymifolia* are compared. Fruit composition is given for the Fuerte variety. In Peru various Mexican strains and the variety Topa Topa are used as root-stocks and propagated from seed, which germinates more rapidly and more completely if the two ends are cut. Polythene bags are increasingly used as nursery containers. Grafting methods are described, and also transplanting and subsequent maintenance. Brief notes are given on harvesting, packing, storage, yields of 15 varieties and the recognition of the main pests and diseases.—Estac. exp. agric., La Molina.

VOGEL, R.

Observations sur le comportement au froid des varieties d'avocatiers cultivees a la Station Experiméntale d'Agrumiculture de Corse. *(Observations on resistance to frost of the avocado pear-varieties grown at the Corsica Citrus Experimental Station.)* (English, German, Spanish and Russian summaries about nine lines each.) "Rapp. annu. Irist. franc. Rech. fruit. Outre-Mer." 1962-63, reprinted in "Fruits d'Outre Mer," 1964, 19: 140-2, illus.

The minimum temperatures registered under shelter between 13 January and 3 February were from + 1 degree to 0 degree C. for 61 hours and 0 degrees to 2 degrees for 65 hours, but temperatures in the plantations are estimated to have been at least 2 degrees colder. Of 12 Mexican varieties all but one (Emerald) suffered no damage. Of 15 Guatemalan varieties three were uninjured, six suffered slight leaf burn, five had from 1/10 to 3/4 of the leaves and some buds or shoots burned, and one (Wilder) had the framework branches and part of the trunk destroyed. Of three West Indian varieties one had from 1/10 to 1/4 of the leaves and some buds burned, and two had all the leaves and shoots and some branches burned. Of 22 hybrid varieties 13 were either uninjured or suffered only slight leaf burn, seven had from 1/10 to 3/4 of the leaves and some buds or shoots burned, one had all the leaves and some buds or shoots burned, one had all the leaves and shoots and some branches destroyed, and one had the framework branches and part of the trunk destroyed. *Persea nubigena* was unaffected.

MUNNECKE, D, E., AND ZENTMYER, G. A.

Crown gall on avocado. "Phytopathology," 1964, 54: 1302-3, bibl. 4, illus.

Isolates from a gall observed on a mature Fuerte avocado tree produced typical cultures of *Agrobacterium tumefaciens* on agar and galls on carrot tissue. Inoculation with this material produced galls on avocado seedlings. This is the first report of crown gall occurring naturally on avocado trees. (See also H.A., 34: 7478.)—Univ. Calif., Riverside.

BEN-YEHOSHUA, S.

Respiration and ripening of discs of the avocado fruit "Physiol. Plant," 1964, 17: 71-80, bibl. 22.

Fruit segments and discs of avocado fruit in moist air ripened and exhibited a climacteric rise. Water medium affected discs in three ways: (a) marked delay of the softening, (b) inhibition of the climacteric rise, and (c) acceleration of senescence. These effects appeared not to be related to limitation in gaseous exchange. Respiratory activity of tissue slices was higher than that of intact fruit. The respiratory excess of discs of fruit sections over intact fruit was larger in pre-climacteric fruit than in post-climacteric fruit. D-Mannitol at high tonicity accelerated the softening process of discs in aerated solution. Some metabolic inhibitors (dinitrophenol, arsenite, fluoroacetate) prevented the ripening process. Discs taken from freshly picked fruit absorbed water and did not lose cell contents at a significant rate. Discs of ripe fruit leaked cellular materials. Leakage commenced prior to the onset of the respiratory rise and its rate climbed steeply together with the ripening process. The apparent free space of ripe fruits was much higher than that of freshly picked fruit. (From author's summary. See also H.A., 33: 7931 and earlier.)—Weizmann Inst. Sci., Rehovot, Israel.

GUSTAFSON, C. D.

Temperature changes in Fuerte avocado from tree to market. "Calif. Agric.," 1964, 18(10): 7, 8.

With a view to elucidating the cause of black discoloration during retailing, preliminary investigations were carried out into the temperature changes taking place in the fruit during marketing and into the effects of these changes on fruit quality. It appeared that the fruit responds very closely and quickly to changes in ambient air temperature.

TANGO, J. S,

Extracao do oleo de abacate. *(The extraction of avocado oil.)*

"Agronómico," 1964, 16 (1/2): 4-5.

A comparison of various methods.

SINCLAIR, W. B., LINDGREN, D. L., AND FORBES, R.

Recovery of ethylene chlorobromide from agricultural products. "J. Econ. Ent.," 1964, 57: 346-8, bibl. 4.

A quantitative method was developed to determine residual ethylene chlorobromide in fumigated products. Experiments with macerated tissues of orange, lemon and avocado indicated that the fumigant reacted with the chemical constituents of the fruit, Valencia oranges retaining 1.0 p.p.m. of ethylene chlorobromide in the whole fruit and 11.2 p.p.m. of bromine in the peel nine days after fumigation.—Univ. Calif., Riverside.

GUSTAFSON, C. D.

Soil fumigation for avocado replants. "Yearb. Calif. Avoc. Soc.," 1963, 47: 73-80, bibl. 2, illus.

In the experiment described old avocado soils were fumigated with four fumigants prior to replanting, and the development of the young trees was recorded. Growth was greatly improved by the use of Telone, methyl bromide and Mylone, but little difference was noted where Nemagon was used. (For an earlier account see H.A., 33: 7925.)

McMURTRY, J. A., AND JOHNSON, H. G.

Progress report on the introduction of a thrips parasite from the West Indies. "Yearb. Calif. Avoc. Soc.," 1963. 47: 48-51, bibl. 3. illus.

Dasyscapus parvipennis, for the control of *Heliothrips haemorrhoidalis* on avocado.

ERICKSON, L. C.

Avocado fruit growth and maturity. "Calif. Citrogr.," 1964, 49: 306-7. 318-20, bibl. 11.

A review of methods of estimating avocado maturity.

HATTON, T. T., JR., WOLFENBARGER, D. O., AND REEDER, W. F.

Postharvest effects of dipping and fumigating Florida avocados with ethylene dibromide and ethylene chlorobromide. "Proc. Fla. St. Hort. Soc.," 1963, 1964, 76: 355-60, bibl. 25.

EDB and ECB treatments against Mediterranean fruit fly damage significantly accelerated ripening in avocados. Treatments which caused the most injury also resulted in the most rapid ripening. ECB usually caused less injury than EDB, and dipping generally caused less, but more erratic, injury than fumigation. Differences were observed in varietal tolerance. Generally, the most promising treatments were ECB at 1 lb. per 1,000 cu. ft. as a fumigant and at 1: 6,000 and 1: 4,000 as a dip. (From authors' summary.—See also H.A., 33: 3754.)—U.S.D.A., Miami, Fla.

GUSTAFSON, C. D.

Temperature changes in the Fuerte avocado fruit from tree to market. "Yearb. Avoc. Soc.," 1963, 47: 106-8.

Observations indicated that the temperature of the fruit, both just beneath the skin and near the seed, responded very rapidly to changes in the ambient temperature and followed it closely.

SCHROEDER, C. A.

Proliferation of avocado fruit in vinyl bags. "Yearb. Calif. Avoc. Soc.," 1963, 47: 109-11, bibl. 5, illus.

Nearly full-sized avocados enclosed in vinyl film bags for 6-8 weeks become practically covered with a 2-5-mm.-thick layer of white tissue produced by the development of the periderm beneath the stomata and the surrounding lenticular tissue. This tissue was extremely delicate, and. on removal from the hags, dried up to a brown cork or scab.—Univ. Calif., Los Angeles.

PHILLIPPE, J. M.

Report to the Government of Liberia on the fruit crops development program with special reference to citrus fruits. "Rep. FAO/ ETAP," 1702, 1963, pp. 53 + 12, bibl. 19, illus.

This report deals mostly with citrus, and briefly with the pineapple, avocado, mango, banana and papaw crops. The present, underdeveloped, state of the fruit industry in Liberia is described and recommendations are given on varietal introductions and trials, propagation and ancillary problems of these crops. (See also H.A., 33: 1565 and 1820.)

POPENOE, J.

Spring avocado varieties for South Florida. (Spanish summary six lines.) "Proc. Carib. Reg. Amer. Soc. Hort. Sci.," 1963, 1964, 7(11th annu. Mtg.): 80-3, bibl. 4.

Kampong was considered the best of 10 late-season domestic varieties tested. It is recommended for commercial purposes as a late winter variety provided its large fruit size is not disadvantageous. (For summer varieties see H.A., 33: 7924.)

GUSTAFSON, C. D.

Leaching controls avocado tipburn. "West. Fruit Gr.," 1964, 18 (12): 25-6.

Studies on chloride toxicity, which are described, suggest that the accumulation of individual chloride ions caused tipburn rather than the total salinity in the soil. Shortening the irrigation periods from 14- and 21-day schedules to a 7-day regime was

beneficial. The higher the chloride content of the irrigation water the more frequent the irrigation should be (as measured by tensiometers) and the more water should be used.

FROSSARD, P.

La pourriture pedonculaire des avocats en Cote d'Ivoire. Influence de la temperature sur le developpement de *Diplodia na-alensis. (Avocado stem-end rot in the Ivory Coast. Effect of temperature on the development of Diplodia natalensis.)* (English, German, Spanish and Russian summaries seven lines each.) "Rapp. annu. Inst. franc. Rech. fruit. Outre-Mer," 1962-63, reprinted in "Fruits d'Outre Mer." 1964, 19: 401-3, bibl. 3. Inoculation experiments showed that the fungus is a wound parasite. Studies on the rate of growth of colonies at different temperatures led to the conclusion that the length of time the fruits remain at temperatures over 21 degrees C. after harvesting should be kept as short as possible.

ROTH, G.

A study on avocado tree decline. (Afrikaans summary ½ p.) "Tech. Commun. Dep. Agric. tech. Serv., S. Afri.," 18, 1964, pp. 10, bibl. 16, illus.

Several fungi found associated with the roots of declining trees are listed. *Phytophthora cinnamomi* did not readily attack avocado roots in spite of over-watering, provided the roots were not mechanically injured. Tests indicated that this fungus may cause retrogression, and in some cases death of the plants, by direct inoculation and under unfavorable soil and environmental conditions. No harmful effects resulted from inoculations with the other associated fungi. (From author's abstract.) Soil with low colloidal and high silt and clay contents and with a low micro-organism population did not promote healthy avocado tree growth.—Citrus subtrop. Fruit Res. Inst. Nelspruit.

HATTON, T. T., JR., AND REEDER, W. F.

Relationship of bloom date to the size and oil content of Booth 8 avocados. (Spanish summary 11 lines.) "Proc. Carib. Reg. Amer. Soc. Hort. Sci.," 1963, 1964, 7(11th annu. Mtg.): 106-11, bibl. 13.

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