

ADHESIVES FOR WOOD

The most effective adhesives for wood joints have a moisture content between 8% and 12%. Apparently a monomolecular layer of water between the wood and the adhesive is necessary to provide the adhesive force, through hydrogen bonds. To correlate other factors with the new theory, an extensive microscopic study of glue joints in wood is being made. Research is directed to the various stresses and to the importance of such other factors as penetration of adhesives, surface texture and density, and surface damage before gluing.—*J. E. Marian, Forest Products Laboratory, Berkeley.*

Search for chemicals to kill**FUNGI IN SOIL****without injury to crop plants**

Of approximately 2,000 chemical compounds tested as soil fungicides, not more than 10 warranted additional investigations in a systematic search for a safe, effective fungicide harmless to crop plants. One of the 10 promising compounds, Terraclor, has effectively controlled root rot of beans and a limited number of other plant diseases.

Research on one of the dithiocarbamate fungicides shows that it kills soil fungi by first destroying their protective cell walls.—*J. B. Kendrick, Jr., Dept. of Plant Pathology, Riverside.*

New process produces**FLOR-TYPE SHERRY****in less than six weeks**

A new type of wine of distinctive character similar to that of Spanish sherry can be produced in less than six weeks instead of the several years required to make Spanish sherry by traditional methods.

The wines produced by the rapid process developed at Davis are not identical with Spanish, or flor-type, sherry but can be blended to make a distinctive wine. Also, the new wine can be blended with California baked-type sheries for improvement in quality.

Pilot scale experiments with the new rapid process, conducted by commercial vintners, have been successful in lots as large as 500 gallons.—*C. S. Ough and M. A. Amerine, Dept. of Viticulture and Enology, Davis.*

GRAPEFRUIT SEEDLINGS

A night light of low intensity supplementary to eight hours of daytime illumination aided experimental grapefruit seedlings to grow considerably more than similar seedlings kept dark at night. The same response was found whether temperature conditions were normal—warm for eight daytime hours and cooler for 16 nighttime hours—or the reverse—cool for eight daytime hours and warm for the other 16 hours.—*Harry C. Kohl, Jr., Dept. of Floriculture and Ornamental Horticulture, Los Angeles.*

Nematodes in**VINEYARDS**

Crop rotation and land management practices are included in long-term field experiments to find means of establishing thrifty, productive vines in nematode-infested land.

Chemical fumigation of the soil, tested for 10 years, alters the soil environment, and resulting conditions are favorable for the rapid multiplication of the few nematodes—especially root-knot and root-lesion nematodes—that survive chemical treatments. Therefore the study is continuing on nematode life cycles, needs, weaknesses, and limitations and on their distribution in all growing areas.—*D. J. Raski, Dept. of Plant Nematology, Davis.*

Parasites of the**WALNUT HUSK FLY****found on black walnut trees**

The first known parasites of the walnut husk fly—previously thought to be free of parasitic enemies—were found in southeastern Arizona in July, 1959, when two species were found on the foliage of black walnut trees at the Southwestern Research Station of the American Museum of Natural History. An adult female parasite was seen to oviposit in the husk of a larvae infested walnut. Later, an egg of the parasite was dissected from a larva of the husk fly. The discovery of the parasites in Arizona presages revived research in California on the biological control of the walnut husk fly.—*S. E. Flanders, Dept. of Biological Control, Riverside.*

BRIEFS**Pen space for****MARKET SWINE****raised in confinement**

Extensive experiments to investigate space requirements—for feeding and sleeping—of market swine raised in pens are being conducted at Davis in cooperation with the United States Department of Agriculture. So overhead costs for pen and barn space can be kept at a minimum per pound of pork produced, the trials are investigating the amount of space required per pig from feeder age to market weight and the effect of numbers of pigs per pen. The studies are testing space allotments of 5, 10 and 20 square feet per pig and pig concentrations of 3, 6, and 12 per pen.—*Hubert Heitman, Jr., Dept. of Animal Husbandry, Davis.*

Size factors in**WOOD TESTING**

The structure and properties of individual cells and tissues in wood determine the properties of a large piece of wood. In tests of tensile strength, thin samples of various materials often show greater average strength than larger pieces. The opposite effect—noted in a recent study of warping in wood—requires special modification of a previous theory, which relates the size and strength factors to the distribution of flaws in a material. Current studies are on the operation and effects of size factors in mechanical wood testing.—*A. P. Schniewind, Forest Products Laboratory, Berkeley.*

Problem of reinfestation by**APPLE APHID****subject of three-phase study**

A suitable systemic insecticide that will remain effective against reinfestation during the summer; proper timing of treatments to avoid economic damage; and the identification of host plants from which the winged forms of the apple aphid migrate and reinfest adjacent orchards, comprise a three-phase research program on the apple aphid.—*Harold F. Madsen, Dept. of Entomology and Parasitology, Berkeley.*