SECTION I - VARIETIES

WALNUT BREEDING

B. Iwakiri, H. Forde, R. Snyder, P. Hansche, and D. Ramos

No crosses were made in 1978 and none are planned for 1979. Seeds from the 1977 crosses were planted in the greenhouse; 202 trees grew from this seed and will be lined out in the nursery this spring. There were 206 trees from 1976 crosses (1977 series) grown in the nursery which will now be transplanted to the seedling block.

The collection of field notes and evaluation of nut samples from the test orchards at Davis were continued under the direction of Harold Forde. Larger nut samples were gathered from the variety and selection blocks and graded by Diamond Walnut Growers, Inc.

Three highly promising selections (64-172, Chandler; 64-182, Howard; and 66-4, Sunland) were patented and released to licensed nurseries for commercial propagation.

PISTILLATE FLOWER ABSCISSION

P. B. Catlin and D. E. Ramos

Pistillate flowers of Hartley were tagged in order to determine the extent and progression of abscission. At the time of tagging, abscission was strongly identified with Serr and its occurrence with later flowering varieties was uncertain. Flowers were selected separately as early-, mid-, or late-bloom. Mid-bloom was divided into 2 classes, "normal" and "suspicious" differing only in that the latter had slight browning of the stigmas. Mid-bloom flowers had stigmas mostly to fully reflexed, 2-3 mm in diameter, and would represent early receptiveness for pollination.

Final counts taken after 1 month revealed that 95% of the "suspicious" mid-bloom flowers had dropped compared to 34% of the normal ones of the same bloom class. Respectively, 16 and 23% of the early and late bloom samples abscised. These limited and highly preliminary results suggest that something occurred at a particular time when flowers were at a certain stage of development which resulted in their abscission. Flowers either more- or less-advanced developmentally were less affected.

Limited histological examinations revealed that the integuments, surrounding the nucellus and the evaginations, presumably nutritive tissue, developed, but then disintegrated. This presumably led to ovule abortion and then abscission. These events appeared to have occurred prior to or in the earliest stages of receptivity for pollination.

It seems clear that there was heavy abscission of pistillate flowers of Hartley as well as earlier blooming varieties in 1978. Possible causes of this phenomenon will be discussed.