Gross examination of the organs of mice in Expts. I–IV revealed extensive hemorrhagic areas in the lungs and lesions in the livers. Microscopically, the lungs showed in addition to hemorrhagic areas, congestion of capillaries, edema, and some consolidation. The liver showed extensive areas of coagulative necrosis, hyalinization, bile duct proliferation, congestion, cytoplasmic oxyphilia, and disruption of the normal architecture. Kidney damage included evidence of protein leakage, degeneration of tubular epithelium, and capillary engorgement in glomerular tufts. The extent of injury was proportional to the volume of added hexachlorocyclopentadiene.

The results of the above experiments point clearly to the explanation for variance in results between currently produced chlordane and that used by Frings and O'Tousa. When, and only when, hexachlorocyclopentadiene is added to chlordane, the results are in entire agreement with those obtained by Frings and O'Tousa.

Another type of experiment similar to that performed by Frings and O'Tousa, wherein mice were confined to a poorly ventilated box, the inner surface of which had been treated with 5 g of chlordane and renewed every 3 weeks failed to produce any signs of intoxication during a 4-month test. Gross findings at autopsy were negative and histological changes, confined to the liver, were minimal.

It can be concluded from the above investigation that the reported vapor toxicity to mice should not have been attributed to chlordane, but rather to an unreacted intermediate. The intermediate was undoubtedly present in chlordane as manufactured at one time, but has since been reduced to a point where it is no longer present in quantity sufficient to produce significant vapor toxicity to mice.

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An Improved Holder for Seedlings in the Avena Test[1]

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The glass holders and wooden racks used in the standard Avena test method for plant growth regulators (*1*) can be replaced by convenient and easily constructed Lucite racks (Fig. 1). These racks hold the seedlings more firmly, allow straighter growth, hold twice the number of plants in the same space, save considerable time in the selection of uniform rows for testing, and are easily cleaned.

One-quarter inch Lucite is cut into $2 \times 7\frac{3}{8}$-in. strips, for use in standard $10 \times 16\frac{1}{2} \times 2\frac{1}{2}$-in. enamelware pans. Five or six racks will fit in a pan this size. Twenty-four holes are drilled through each strip,

[1] Published with the approval of the Director as Technical Paper No. 212 of the Pineapple Research Institute of Hawaii.

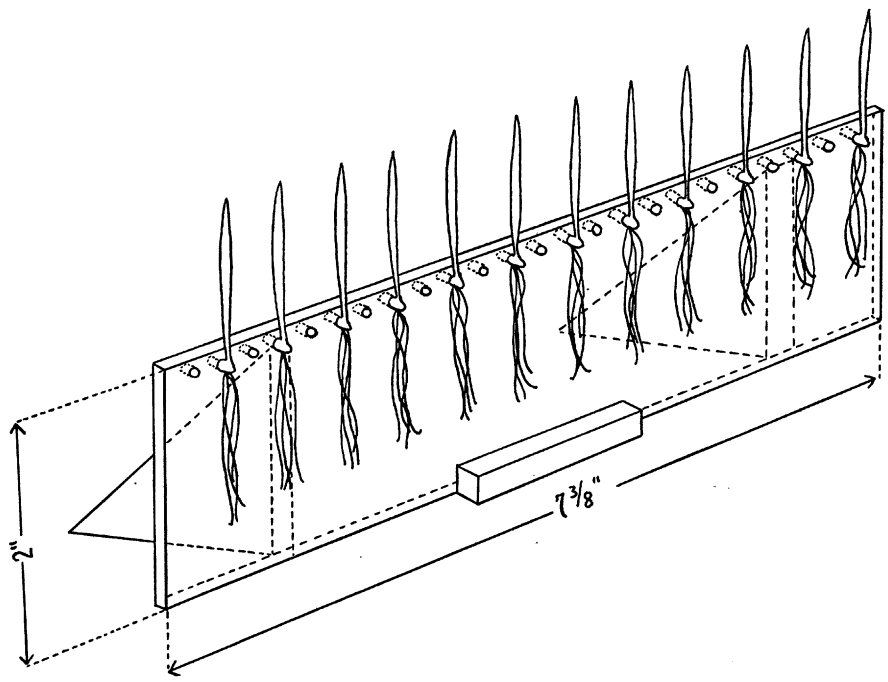

FIG. 1.

1/8-in. from the top and 1/4-in. apart, using a 1/8-in. and 7/64-in. drill on alternate holes. Triangular supports are glued to the back and a 1/4-in. strip to the front, with Duco cement.

Avena seeds, germinated for 52 hr on filter paper, are placed in 18 or more of the holes in each rack. The racks are then placed in enamelware pans filled to an adequate level with tap water. The following day, obvious discards are made at the first decapitation; rigid selection within each rack may be made at the second decapitation. The seeds are somewhat smaller by this time and the 12 plants used in actual testing usually fit in the evenly spaced holes of smaller size.

Reference

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Interaction of Auxin and Temperatures in Floral Initiation[1]

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That auxins can inhibit floral initiation has been known since the early work of Dostal and Hosek (*1*); conversely that auxins can sometimes induce flowering (*2*) or promote flowering (*3*) has likewise been clarified. Subsequent reports have greatly enlarged the reported instances in which auxin can inhibit or promote flowering, but in no other case than the pineapple has auxin been found actually to induce flowering. These facts suggest that plants in general may have various auxin requirements for floral initiation, and in some cases the indigenous auxin level may be supraoptimal (*4*) or in other cases suboptimal for flowering (*3*).

More recently it has been found that the effects on flowering of a given auxin treatment of pea depend to a large extent upon the subsequent temperature experience (*5*). The present study demonstrates that an interaction between auxin (naphthaleneacetic acid) and temperatures in floral initiation exists in all of the types of floral initiation known: that is, in photoperiodic initiation, vernalization, and indeterminate initiation of flowers. In each instance auxins can either promote or inhibit flowering, depending upon the temperature experience following the auxin treatment.

Tests with photoperiod sensitive plants included the long-day species Wintex barley, and the short-day species Biloxi soybean. Seeds were soaked in auxin solutions for 24 hr, after which they were given 18° or 3° C exposures for 2 weeks. They were then planted into the greenhouse under inductive day lengths (18 and 9 hr respectively). The results with the long-day barley are shown in Fig. 1, from which it can be seen that the number of flower primordia was increased over 50% by 0.1 ppm of auxin followed by the 3° C treatment; whereas, the same auxin treatment followed by 18° C treatment did not increase and may have inhibited flower initiation. The results with short-day soybean are shown in Fig. 2. It can be seen that a parallel situation holds here, in that 1 ppm auxin

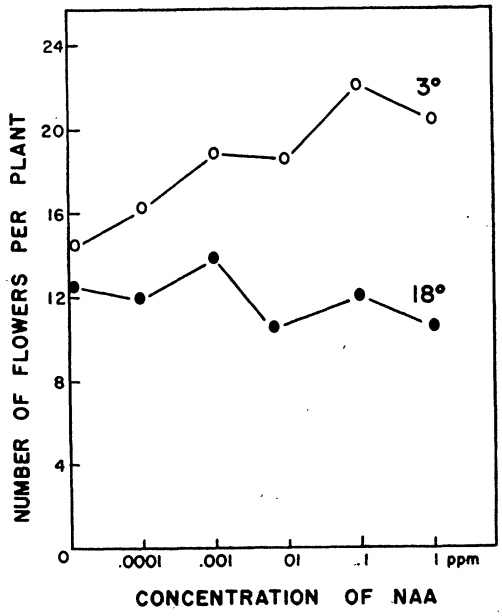

FIG. 1. Effects of treatment of seed of Wintex barley with naphthaleneacetic acid and followed by brief controlled-temperature storage (10 plants/treatment).

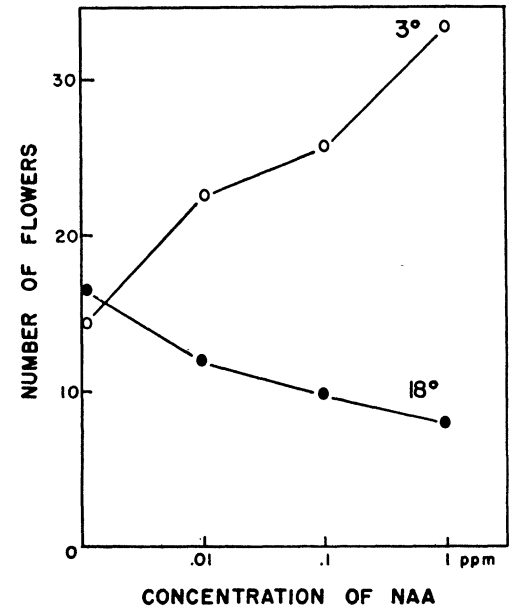

FIG. 2. Effects of treatment of seed of Biloxi soybean with naphthaleneacetic acid followed by brief controlled-temperature storage (10 plants/treatment).

[1] Journal paper No. 716. Agricultural Experiment Station, Lafayette, Indiana.