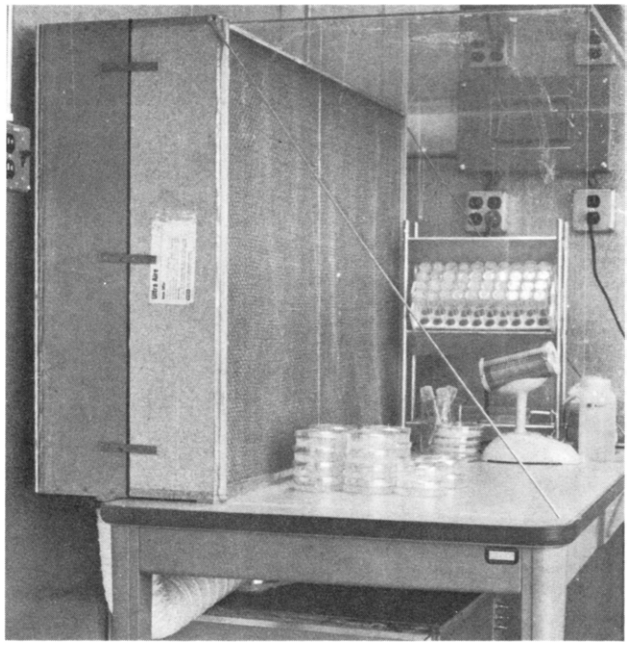

Fig. 2 Photograph of constructed laminar flow hood in operation.

same volume of air. The blower was mounted in a separate box arrangement to allow for complete prefiltration of the air by a 40 pore·cm^{-1} (100/inch) polyurethane foam filter, which adds considerable life to the HEPA filter.

Figure 1 illustrates a single hood arrangement with a vibration-free work surface. This arrangement could be modified easily by making 3 or 4 smaller plenums and filters 50 × 50 cm (2 × 2 ft) and concurrently smaller plexiglass covers. Each of these units, could be fed with 2 dryer vent hoses from the prefilter fan unit to make sterile transfer areas for 3 or 4 students. The prefilter blower unit could be located outside the room to provide a slight positive SP to prevent dust or spore laden air from entering a culture room as well as providing a sterile laminar flow hood.

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Effect of Zeatin and 2iP on Shoot Proliferation of Three Highbush Blueberry Clones in Vitro

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N-(3-methyl-2-butenyl)-1*H*-purin-6-amine (2iP) has been used to promote multiple shoot formation in previous tissue culture studies with ericaceous plants (1, 3–7). Fordham et al. (3), however, found that (*E*)-2-methyl-4-(1*H*-purin-6-ylamino)-2-buren-1-ol (zeatin) was the most effective cytokinin for stimulating shoot proliferation of cultured Exbury azalea (*Rhododendron* sp.). This study was conducted to determine if highbush blueberry is similar to Exbury azalea in its response to zeatin.

Shoot tip cultures of 3 highbush blueberry clones (G-694, G-355, and G-224) were grown on a blueberry micropropagation medium (8) containing 0.025 mM 2iP. Then, from these cultures, unbranched axillary shoots about 1 cm in length were subcultured on WPM media (5) containing 0, 0.0185, 0.037, 0.074, or 0.148 mM zeatin (mixed isomers) or 2iP with 10 replications per treatment. Cultures were grown at 25°C under 16-hr photoperiods (55–60 μmol·s^{-1}·m^{-2} at the level of culture container) using warm-white fluorescent lights. The number of living shoots 0.5 mm or longer were counted at the end of 6 weeks.

Zeatin induced proliferation of 2 to 4 times as many shoots as 2iP (Fig. 1). Increasing the concentration of either cytokinin had a similar effect on shoot proliferation. The above experiment was repeated by subculturing one unbranched axillary shoot about

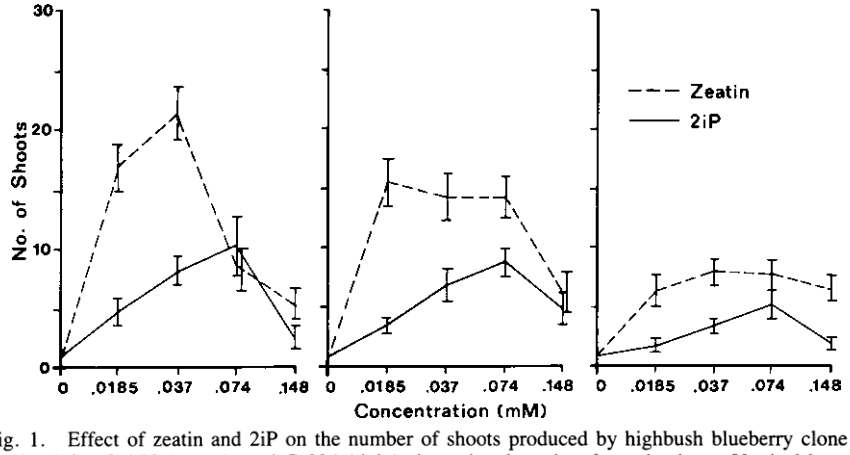

Fig. 1. Effect of zeatin and 2iP on the number of shoots produced by highbush blueberry clone G-694 (left), G-355 (center), and G-224 (right) shoot tips 6 weeks after subculture. Vertical bar represents ± SE.

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1 cm in length from each replication of each treatment. The results were similar to those presented in Fig. 1.

Zimmerman and Broome (8), working with highbush blueberries, and Frett and Smagula (4), working with lowbush blueberries (*V. angustifolium* Aiton), found that the number of shoots produced in vitro increased with increasing concentration of 2iP within the range of 0 to 0.148 mM. In our study, however, fewer shoots were produced at the 0.148-mM concentration than at the 0.074-mM concentration.

Cohen (2) and Zimmerman and Broome (8) observed that adventitious shoots of highbush blueberry arose from leaves in contact with a medium containing 0.074 mM 2iP. We also observed adventitious shoots arising from leaves—especially at the higher concentrations of zeatin and 2iP.

It appears that highbush blueberry is similar to Exbury azalea in its response to zeatin. Zeatin should be useful to blueberry breeders who want to multiply a clone rapidly from limited stock. The use of zeatin by commercial blueberry propagators may not be economical because of its high cost relative to 2iP.

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A Seed-cleaning Sluice for Fleshy-fruited Vegetables from Small Plots

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A major difficulty in conducting seed production research with fleshy-fruited vegetables [e.g., pepper (*Capsicum annuum* L.), tomato (*Lycopersicon esculentum* L.), and cucumber (*Cucumis sativus* L.)] is recovering and cleaning the seeds. Once seeds have matured within the fruit, it is necessary to crush the fruit and extract the seeds from the pulp.

In commercial seed production fields, ripe fruits are gathered mechanically or by hand and are passed through a mechanical crusher. The crushed fruit then is tumbled in a perforated cylindrical metal screen. The seeds pass through the perforated screen with water or liquid from the fruit. The pulp passes over the perforations and is discharged out of the cylinder. A plot scale extractor has been described by Wehner et al. (3).

After seeds have been extracted, they must be washed and separated from small pieces of pulp, debris, and immature seeds. This separation is accomplished using the differential in buoyancy between fully developed mature seeds and the debris, pulp, and immature seeds.

Commercial seed conditioning operations construct seed sluices as large as 0.5 m deep, 1.0 m wide, and 10.0 m long. A series of sluice gates interrupts a continuous flow of water that passes through the body of the sluice (2). Mature seeds sink and collect behind the gates, while debris, pulp, and immature seeds float on the surface and pass over the gates and out of the sluice. After the washing is completed, the sluice is drained, the gates lifted, and the mature seeds collected and dried.

A plot-scale seed sluice was constructed based on these same principles. The machine handles seeds extracted from plots producing between 10 and 200 kg of fruit. The entire washing process takes 15 to 30 min, depending on the amount of fruit and ease of separation of pulp and seed.

The main components of the seed sluice are the sluice body, 3 sluice gates, a delivery tray with water injector, a water injector/mixer, and debris discharge and sluice drain with screen. The sluice system is filled with water by either a 20- or 25-mm diameter hose. Water is regulated to the delivery tray and injector/mixer by 2 hand valves. In addition, a hose faucet is included to assist with depositing samples into the sluice delivery

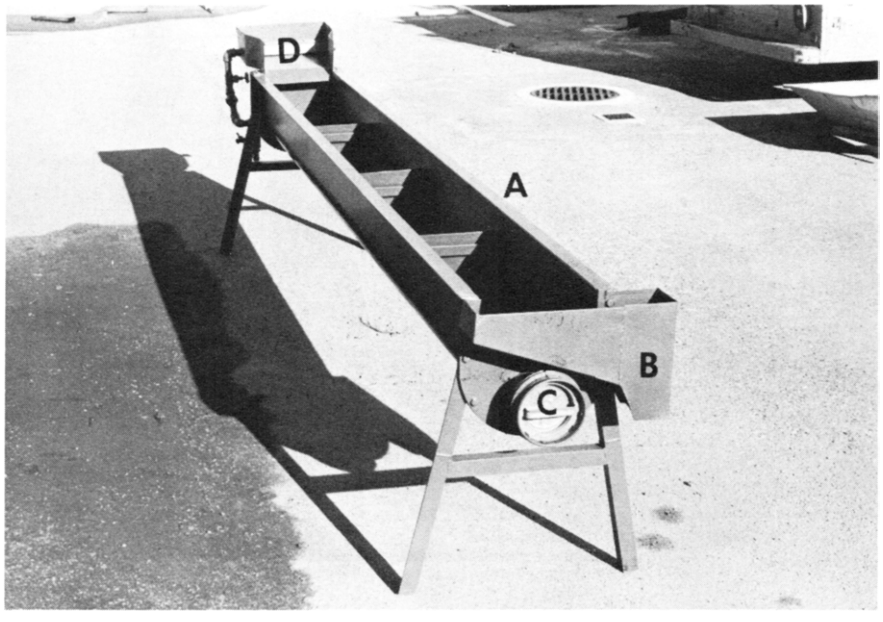

Fig. 1. Full view of seed cleaning sluice. Sluice body (**A**), debris discharge (**B**), sluice drain (**C**), and delivery tray (**D**).

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