carbonyl compounds are easily detected as orange spots when the bugs are placed on filter papers saturated with 2,4-dinitrophenylhydrazine. The ejection can be either bilateral or unilateral. Unilateral ejection was most commonly observed when the bugs were approached by imported fire ant workers (*Solenopsis saevissima* v. *richteri* Forel). Ants which were exposed to the spray rapidly moved away. This would seem to support the belief that the odoriferous secretions of the pentatomids are at least partially protective.

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Use of Cytoplasmic Male-Sterility in Making Interspecific Crosses in Allium

Abstract. Cytoplasmic male-sterile plants of *Allium cepa* were used in making interspecific crosses with *A. fistulosum*. Some inbred lines of *A. cepa* produce more seed than others. Other *Allium* species could also be used as the pollen parent.

In plant breeding hand emasculation is often slow and painstaking; the results are somewhat disappointing and the number of F_1 progeny is limited. The cytoplasmic male-sterile character in *Allium cepa* L., as reported by Jones and Clarke (*1*), is extremely useful in crossing *A. cepa* and *A. fistulosum* L.

Eight cytoplasmic male-sterile inbred lines of *A. cepa*, each represented by 10 mother bulbs, were placed in an insect-proof isolation cage 3½ by 6 by 6 feet. Though *A. cepa* bloomed much later than *A. fistulosum*, no particular difficulty was encountered. By growing several thousand *A. fistulosum* plants, a sufficient number of late-flowering umbels were obtained. The seedstalks, with stems as long as possible, were cut and placed in a container of water to which 1 part of copper per million in the form of copper sulfate was added to prevent growth of fungi and algae. The container of flowers of *A. fistulosum* was then placed in the cage with the *A. cepa* inbred lines. Honey bees (approximately 3 pounds of workers with a queen, brood, comb, and so forth) were used as the pollinators.

The inbred lines used and the number of seeds from each inbred line are given in Table 1. Of course, the difference in bloom time could account for some but probably not all of the difference noted. I feel that some inbred lines will cross more readily with *A. fistulosum*, although sufficient data are not available for a definite statement. The well-known constancy of bees in pollinating a particular species, strain, or even individual plant, or their preference for plants with high sugar levels in the nectar as reviewed by Grant (*2*) was not a factor in the pollination of the material in this report. The bees were confined to a small volume and were not free to forage. Food was not too plentiful within the cage. The bees visited each and every plant without preference for one or the other. Some of the F_1 progeny were male-fertile, others male-sterile. Ratios were not determined.

The characteristics of *A. fistulosum* are sufficiently distinct from those of *A. cepa* that the two species are readily identified. The hybrid between the two species is intermediate in character. Plants grown from the seeds reported in Table 1 were hybrids between the two species. Emsweller and Jones (*3*) have described the interspecific hybrid.

This system of crossing eliminates emasculation, reduces possible contamination, increases the chance of a cross, and produces a greater number of seeds. When single umbels are being crossed, houseflies or blue-green bottle flies can be used as pollinators. A male-sterile umbel of *A. cepa* can be enclosed in a small cage with the male-fertile umbel of *A. fistulosum*.

Though only a few seeds were produced, they were adequate to grow out the F_1 generation. The F_1 interspecific hybrids produced in the foregoing manner may be either male-fertile or male-sterile. Male-fertile plants may be used as the pollen parents in a backcrossing program with male-sterile *A. cepa* as the recurrent female parent. Male-sterile F_1 interspecific hybrids can be used as the female parent with a male-fertile *A. cepa* as the pollen parent.

Table 1. Number of seeds produced on eight male-sterile *A. cepa* inbred lines pollinated by *A. fistulosum* with honey bees in an insect-proof isolation cage, Parma, Idaho, 1955.

Inbred source	Pedigree	No. of seeds
Early yellow globe	B 2108 A	30
Early yellow globe	B 2117 A	40
Brigham yellow globe	B 2190 A	200
Brigham yellow globe	B 2207 A	75
Brigham yellow globe	B 2217 A	30
Brigham yellow globe	B 2218 A	55
Brigham yellow globe	B 2267 A	40
Yellow sweet Spanish	B 12132 A	20

Although only *A. cepa* was crossed to *A. fistulosum* by this method, other *Allium* species could be used as the pollen parent. The system is simple and effective in making interspecific as well as intraspecific crosses in the *Allium* species, in which a male-sterile *A. cepa* can be used as the seed parent (*4*).

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Pineal Regulation of the Body Lightening Reaction in Amphibian Larvae

Abstract. Body pallor due to contraction of both deep and integumental melanophores occurs when either blinded or normal *Xenopus laevis* and other amphibian larvae are placed in the dark. The reaction is abolished by pinealectomy, but is induced by administration of pineal hormones. It is suggested that the normal body lightening reaction is mediated by the pineal gland.

It has been known for many years that due to melanophore contraction amphibian larvae become pale when subjected to darkness for periods of a few hours (*1–3*). The mechanism of this lightening reaction, however, remains unexplained and our understanding of it has been further complicated by observation that the phenomenon is not abolished in blinded larvae (*2*). With this in mind and as a result of the discovery that the tail darkening reaction of *Xenopus laevis* is due to a direct effect of light on tail melanophores (*4*), it was suggested that a similar photochemical mechanism might mediate the body lightening reaction (*3*). In the course