The cowpea curculio, *Chalcodermus aeneus* Boheman, is the principal insect pest of southernpeas, *Vigna unguiculata* (L.) Walp., in the southeastern United States. The insect is of considerable economic importance to the processing industry because the insect damage and contamination make the processed product unacceptable for human consumption. Curculio feeding scars also provide an entry point for much of the pod rot, caused by *Choanephora cucurbitarum* (Berk. & Rev.) Thaxt., in field plantings (3, 5). Cuthbert and Davis (2) and Chalfant et al. (1) delineated several factors that contribute to increased genetic resistance in *V. unguiculata* to the curculio. Subsequently, Cuthbert et al. (4) showed that these factors were complementary in effect. They suggested that the two factors which offered the greatest potential for use in development of resistant cultivars were non-preference and a pod factor that inhibits penetration through the pod wall by the adult insect. The breeding lines CR 17-1-13, CR 18-13-1, and CR 22-2-21 have been released for use as resistant parents in such programs. All are horticultural types with nonpreference or pod factor resistance to the cowpea curculio.

### Origin

CR 17-1-13, CR 18-13-1, and CR 22-2-21 are the result of a breeding program at the U.S. Vegetable Laboratory to develop horticulturally suitable southernpea breeding lines with appreciable levels of resistance to the cowpea curculio. All have a common parent, Ala. 963.8, a line moderately resistant to the curculio because of a pod wall factor. Fery and Cuthbert (6) reported that the pod resistance in Ala. 963.8 is controlled by a single factor. The other parents used in the original crosses from which CR 17-1-13, CR 18-13-1, and CR 22-2-21 were selected are 'Floricream', Fla. 68F-213, and Ala. 562-9-2-6-1, respectively. The released breeding lines, all F5 selections made in 1972, are the sources of resistance presently being used at the Vegetable Laboratory to develop cowpea curculio resistant cultivars.

### Description

CR 17-1-13 has a pod factor that inhibits pod wall penetration by feeding and ovipositing adult cowpea curculios. Failure to penetrate the pod wall prevents both pea damage and oviposition. In replicated field tests, 88 to 93% fewer larvae developed in the pods of CR 17-1-13 than in those of the susceptible check 'California Blackeye No. 5'. CR 17-1-13 resembles its 'Floricream' parent in all plant and yield characteristics except that it is slightly earlier and has maturing pods that are green with purple shading rather than cream colored. CR 18-13-1 has a relatively high level of nonpreference type resistance to feeding and ovipositing adult cowpea curculios. In a replicated field test, CR 18-13-1 sustained 73% fewer punctures per pod than 'California Blackeye No. 5'. This line exhibited a very high level of resistance when grown semi-isolated from susceptible cultivars. CR 18-13-1 has a relatively small spreading plant. The pods are small, green at maturity, and contain cream colored peas. It fruits very early and has concentrated pod set.

### Literature Cited