Table 4. Mean yield and percentage protein for equally spaced and unequally spaced plots, and for transplanted and untransplanted plots.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yield (g per plant)</th>
<th>Percentage protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equally spaced</td>
<td>26.93</td>
<td>20.09</td>
</tr>
<tr>
<td>Unequally spaced</td>
<td>26.86</td>
<td>20.06</td>
</tr>
<tr>
<td>Untransplanted</td>
<td>29.95</td>
<td>21.59</td>
</tr>
<tr>
<td>Transplanted from field</td>
<td>25.36</td>
<td>21.04</td>
</tr>
<tr>
<td>Transplanted from pots</td>
<td>24.03</td>
<td>21.99</td>
</tr>
</tbody>
</table>

As expected, there was a significant difference in yield between plots with 10 cm and 15 cm within row spacing. There was a 37% and 32% increase in yield per plant due to the wider spacing in 1979 and 1980, respectively. The effect of within row spacing on percentage protein was not significant in either year.

The results of this experiment clearly indicate that leaving 2 plants in the location adjacent to a missing plant is more adequate compensation for the missing plants than transplanting with respect to yield and percentage protein.

**Literature Cited**


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**HortScience 16(2):186–187. 1981.**

**Influence of Cultivar and Maturity on Pod Wall Strength in the Southernpea**

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**Additional index words.** insect resistance, cowpea curculio, Chalcodermus aeneus

**Abstract.** The force necessary to puncture pods of southernpea (Vigna unguiculata (L.) walp) was measured with a Model 1122 Instron fitted with a 1 mm diameter stainless steel probe. 'California Blackeye No. 5' and the breeding lines CR 22-2-21 and Ala 963.8 represented types with low, intermediate, and high pod factor resistance, respectively, to the cowpea curculio, Chalcodermus aeneus (Boh.). Pods were selected at 7 stages of maturity for each type. There were no consistent differences in pod puncture force at the 3 immature stages, but at the 4 mature stages pod puncture forces for the resistant lines were significantly higher than for the susceptible cultivar.

Resistance of southernpeas to the cowpea curculio has been attributed to at least 3 factors: non-preference, antibiosis, and pod factor (1). Subsequent research has substantiated these findings (3, 6, 9). The pod factor (percentage of pod punctures penetrating the pod wall) has provided resistance whose heritability is mostly additive (5) and consistent (2). The nature of this resistance is thought to be related to physical factors of the pod wall. Ferry and Cuthbert (7) suggest that this type of resistance may be evaluated by examination of pod:seed ratio data. The pod:seed ratio was negatively correlated with podwall resistance. Ennis and Chambliss (4) attributed pod wall resistance to thickened cell walls in the fiber sheath of the pod wall. These fiber cells were thought to present a possible barrier to penetration of the pod wall by adult curculio during feeding or ovoposition. However, it was not determined whether resistant breeding lines actually had tougher pods at the maturity stages when southernpeas are most vulnerable to damage by the cowpea curculio (3, 8). The objective of this research was to determine the relationship of pod factor curculio resistance to pod wall toughness at several stages of pod maturity.

‘California Blackeye No. 5’ and the breeding lines CR 22-2-21 and Ala 963.8 representing types with low, intermediate, and high pod factor resistance, respectively, were grown in field blocks at the E. V. Smith Research Center, Shorter, Alabama. Bulk samples were hand harvested from the 3 types of peas at the same time and pods were ranked subjectively by size, seed maturity, and color into 7 maturity stages (Fig. 1). Stages 1, 2, and 3 are immature pods. Stage 3 pods can be described as snaps. Stages 4, 5, and 6 are mature stages and encompass the period when the pods are the most susceptible to damage from the cowpea curculio. During stage 6, the pods take on a variable amount of color, and stage 7 represents the dry pod. The first immature stage was about 3 days from anthesis and about 3 days growth separated all the remaining stages as well.

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**Fig. 1.** Seven maturity stages of 'California Blackeye No. 5' and Ala 963.8. The first pods are about 3 days after anthesis with about 3 days growth separated all the remaining stages as well.

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Yield Comparisons of Pickling Cucumber Cultivar Trials for Once-over Harvesting

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Additional index words. Cucumis sativus

Abstract. The 3 common criteria used to express yields of pickling cucumber cultivars are fruit number, dollar value, and kilograms per hectare. In the current study, number of fruit was shown to have the least fluctuation over the time when a single destructive harvest would be made and is suggested as the most accurate criterion for comparing yield of pickling cucumbers.

Yield comparisons of pickling cucumber cultivars for a single destructive harvest can be misleading because time-of-harvest influences the number, weight, and value of fruit. A delay of harvest by a single day can make a significant different in the weight and value of fruit produced. When a trial is harvested on a given day, an early-maturing cultivar will have larger, heavier fruit than a late-maturing cultivar of similar yield potential. Dollar value is also influenced by stage of maturity because it is based upon the weight and diameter of fruit, with small diameter fruits having greater value per unit weight.

While harvesting each cultivar at its optimum stage of maturity would circumvent this problem, practical considerations generally prevent it. As an alternative, it might be more equitable to compare the cultivars on the basis of the number of fruit harvested, since fruit number may fluctuate less over the probable harvest period than either fruit weight or dollar value. However, data have not been presented to verify this hypothesis.

Data on fruit size and number may not have been presented because once a fruit has been harvested future development cannot be ascertained. This problem was solved by determining the length and diameter of all fruit on the same 20 plants of Calypso pickling cucumber in a commercial field each day during the 1977 season. Measuring began as the fruit were setting and continued after the rest of the field was harvested.

In order to assign weights to the fruit being measured daily, 45 kg of fruit of all sizes were harvested and individually marketed and remaining during the marketing period.