Notes

PURPLE STRAW COLOR IN RELATION TO KERNEL WEIGHT IN WHEAT

INFORMATION concerning any relationship between individual plant characters and yield or other quantitative characters is of real value to the plant breeder in his selection work. Purple color in corn was found to be associated with low dry weight of ears per plant and also with low mean kernel weight.2 Worzella3, however, found no correlation between purple straw color and kernel weight in two wheat crosses which he studied.

In the wheat breeding program at the North Carolina Agricultural Experiment Station a cross was made in 1941 between Purplestraw, C.I. 1915, and Carala, C.I. 12184, for the purpose of studying the relationship between straw color and kernel weight and yield. The two varieties are similar in head type, maturity, and yielding ability. Purplestraw, as the name suggests, usually shows a purple pigmentation in the straw. In some seasons the color is better developed than in others.

The F2 plants showed a predominance of purple types, while the F3 progenies showed 85 purple, 67 segregating, 43 white-strawed lines. Those lines which appeared to be homozygous were bulked into two groups, purple and white, and tested in three subsequent years. For the tests single rod-row plots were used, with 10 replications the first year and 20 in each of the other two. Data on weight per 1000 kernels and on yield per acre are given in Table 1.

The data show that in each of the 3 years the purple-strawed types produced kernels which were significantly heavier than were those from the white lines. In 1 year only was a significant yield difference found. Since total plant weight was not taken and no chemical analysis made, no explanation of the results is attempted, but the data are given as a matter of record.


<table>
<thead>
<tr>
<th>Year</th>
<th>Gms./1000 kernels</th>
<th>Yield Bu./A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Purple</td>
<td>White</td>
</tr>
<tr>
<td>1944-45...</td>
<td>30.3</td>
<td>28.5</td>
</tr>
<tr>
<td>1946-47...</td>
<td>27.3</td>
<td>26.3</td>
</tr>
<tr>
<td>1947-48...</td>
<td>26.5</td>
<td>25.6</td>
</tr>
<tr>
<td>Average</td>
<td>28.0</td>
<td>26.8</td>
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</table>

**Significant at the 1% level.

—G. K. Middleton, and T. T. Hebert, Professor of Agronomy and Research Assistant Pathologist, North Carolina Agricultural Experiment Station, Raleigh, N. C., respectively.

THE USE OF RELIEF MODELS IN TRAINING SOIL SURVEYORS

RELIEF models are helpful in training students of soils not only to understand how soils occur on typical landscapes, but also how the soil surveyor records the three-dimensional soil relationships on a two-dimensional map. The models are especially useful teaching aids in regions where the winters are long and severe, and where surveyors receive basic training indoors before the fields season starts.

The soil mapping procedure described here is familiar to experienced soil mappers, but is given in some detail to explain the training process to those not accustomed to think in terms of soil survey.

A COMPARISON OF THE FUNCTIONS OF BLOCK DIAGRAMS AND RELIEF MODELS IN SOIL SURVEY

Block diagrams (7) have been used in soil survey bulletins (1, 5, 8) to help readers understand how the flat soil map actually represents the soil landscape. The block diagram distorts the horizontal relationships of the soil map by introducing perspective and the vertical dimension. The diagram also usually shows on the sides of the block the nature of the subsurface layers and the underlying rock materials.

Relief models facilitate the reverse process—the sketching onto a flat map of soil boundaries, drainage features, and culture as found on an irregular surface. Practice with the model teaches the beginning surveyor to eliminate the effect of perspective and the vertical dimension, as he draws features which he observes on hillsides and in valleys. Soils are identified in the classroom by examining samples of surface soil and subsoil representing profiles at numerous points on the model and displayed in trays with numbers corresponding to site numbers on the relief model.

CONSTRUCTION OF THE RELIEF MODEL

A variety of materials can be used in constructing relief models: papier-mâché, plaster, cardboard, cork, wood, plastic, clay, and various mixtures of pulverized materials (4, 6, 7, 9, 10). The writer prepared the model shown in the figure from corrugated cardboard, sheet cork, pins, glue, and paint. It illustrates upland, valley slope, colluvial, terrace bench, and stream bottom landscapes of the Driftless Area of southwestern Wisconsin. A teaching model need not reproduce to scale an actual area, but should exemplify in a small compass some typical features of a physiographic subdivision of a county or state.