plowing (6 inches or 10 inches), and the domestic ryegrass cover or no cover were a factorial arrangement or treatment within this whole plot. Thus, there were 32 plots for each of 3 dates of plowing, and 48 plots each for deep and shallow plowing, together with 48 for cover crops versus no cover crop.

Plowing for corn, both at 6-inch and 10-inch depths, took place on May 14 (early), May 19 (medium), and May 23 (late), 1958. All corn was planted on June 4, 1958. Seedbed preparation consisted of 2 diskings and 1 harrowing just prior to planting. Fertilization was carried out according to recommended rates. There were two cultivations of the corn crop.

A tractor with two-row mounted corn picker and trailing wagon was used for the corn harvest. This tractor plus mounted picker had a weight of approximately 3½ tons. The trailing wagon weight varied with the degree of corn loading. The tractor with wagon was passed twice between 2 corn rows over all the 96 plots at the time of corn harvest on November 13, 1958.

A convenient soil compaction integrator, described elsewhere, was used to measure total area of depression between the corn rows after the harvest. The exact site for the individual measurement made on each plot was selected by utilizing a table of random numbers. The values reported in table 1 are mean values for the various treatments as noted above. They represent a mean of 32 determinations for each date of plowing and a mean of 48 determinations each for the comparisons of 6-inch plowing versus 10-inch plowing. Also the comparison of cover crop vs. no cover crop represents a mean of 48 determinations for each condition.

Experimental Results and Discussion

An analysis of variance revealed that cross-sectional area of the compacted soil in the table had a significant interaction between cover and depth of plowing. When the depression cross section areas between corn rows were arranged by date of plowing as in the table it is apparent that the medium date of plowing resulted in a significantly greater cross-section area of depression.

Soil moisture percent (Pw) determined on the surface soil for each plot at the time of compaction measurement ranged from 21 to 46%. This wide variation in soil moisture would also include effects of plant residue.

Soil moisture studies were not made throughout the season. Because of variation in rainfall and moisture removal by the ryegrass cover, it is not possible to explain the results obtained in terms of soil moisture.—DIP N. RAM and P. J. ZWERMAN, Graduate Student (Rockefeller Foundation Scholar) and Associate Professor, Plant Introduction Station, Geneva, New York.

EVALUATION OF FOREIGN LEGUMES AND GRASSES—INTRODUCED MOSTLY FROM EUROPE

SINCE the spring of 1956, the Northeastern Plant Introduction Station, Geneva, N.Y., has been growing and conducting a preliminary evaluation of forage legumes and grasses collected during a recent exploration in Europe. This exploration was conducted by the New Crops Research Branch of the Department of Agriculture and was directed toward experiment stations and forage breeding centers. Preliminary evaluation, seed increase, and distribution of these introductions to breeders of forage crop plants are a part of the regional plant introduction program.

Among 475 forage legumes and 387 grasses evaluated in field plantings with single row plots in 1956, the introductions described below may be of interest to forage breeders. Seeds of these introductions are increased and are available for distribution.

ALFALFA

P.I. 236606 Medicago falcata, France. This accession shows excellent vigor, leafiness, winter hardiness, and spring recovery after 3 years’ growth. It is resistant to black stem (Ascochyta imperfecta Pk.) and to leaf spot (Pseudopeziza medicaginis (Lib.) Sacc.)

P.I. 204591 Medicago sativa, Turkey. This accession is unusually vigorous with a wide crown, has excellent winter hardiness and good spring vigor. The flowers are variegated.

P.I. 217419 Medicago sativa, Denmark. Flowers of this accession are relatively short but very

<table>
<thead>
<tr>
<th>Cover</th>
<th>Depth of Plowing</th>
<th>Date of Plowing</th>
<th>Depression cross section between rows, square inches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 in.</td>
<td>10 in.</td>
<td>6 in.</td>
</tr>
<tr>
<td>None</td>
<td>60</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>Ryegrass</td>
<td>58</td>
<td>72*</td>
<td>65</td>
</tr>
<tr>
<td>Mean</td>
<td>62</td>
<td>66.5**</td>
<td>62</td>
</tr>
</tbody>
</table>

* Significant at 5% level. ** Significant at 1% level.