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A Useful Planting-Jig and Plot Design for Experimental Plantings

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A Useful Planting-Jig and Plot Design for Experimental Plantings[1]

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Abstract. In experimental plantings intended to demonstrate interactions between plants it is desirable that the distance between plants be uniform. A planting pattern is suggested in which each of 100 plants is equidistant from all of its neighbors; and a simple planting-jig, which is readily adaptable for spacings up to one meter, is described.

In experimental plantings intended to demonstrate ecological or physiological interactions between plants, it is desirable that the distance between plants be uniform. In planning an experimental tree seedling plantation, the need arose to place the trees within plots so that each was equidistant from its neighbors. Such a pattern is a simple adaptation of equilateral triangles, and dimensions involved can be readily computed trigonometrically. To mark the planting pattern accurately on the ground, however, proved to be more of a problem. Many possible methods were considered, some were tried, and the planting-jig here described represents a satisfactory solution to the problem.

The plot design (Figure 1-A) consists of 24 rows of 6 plants each. The extra row of trees (darkened circles) on each side of the plot is added so that there will be a full 100 trees in each plot, each with 6 equidistant neighbors. Construction of the planting-jig is simple and inexpensive (Figure 1-B). For plant spacings up to one meter, 2 in. x 4 in. lumber serves well for side rails and planting guide. Table 1 shows key dimensions for jigs to accomodate several commonly used planting intervals. Half-inch hardwood doweling is used for pegs in the side rails, and should be glued in place. Depending on its use, notches in the planting guide may or may not be desirable. Paint marks sprayed between two strips of masking tape make an adequate and durable substitute for notches. The diameter of the holes in the ends of the planting guide should be at least ¼ in. larger than that of the pegs in the side rails. A coat of wood preservative over the whole jig is recommended.

The tree numbering system within plots which was found most satisfactory was to consider each plot to consist of rows 1 through 24, along the long side. Each row, then, consists of

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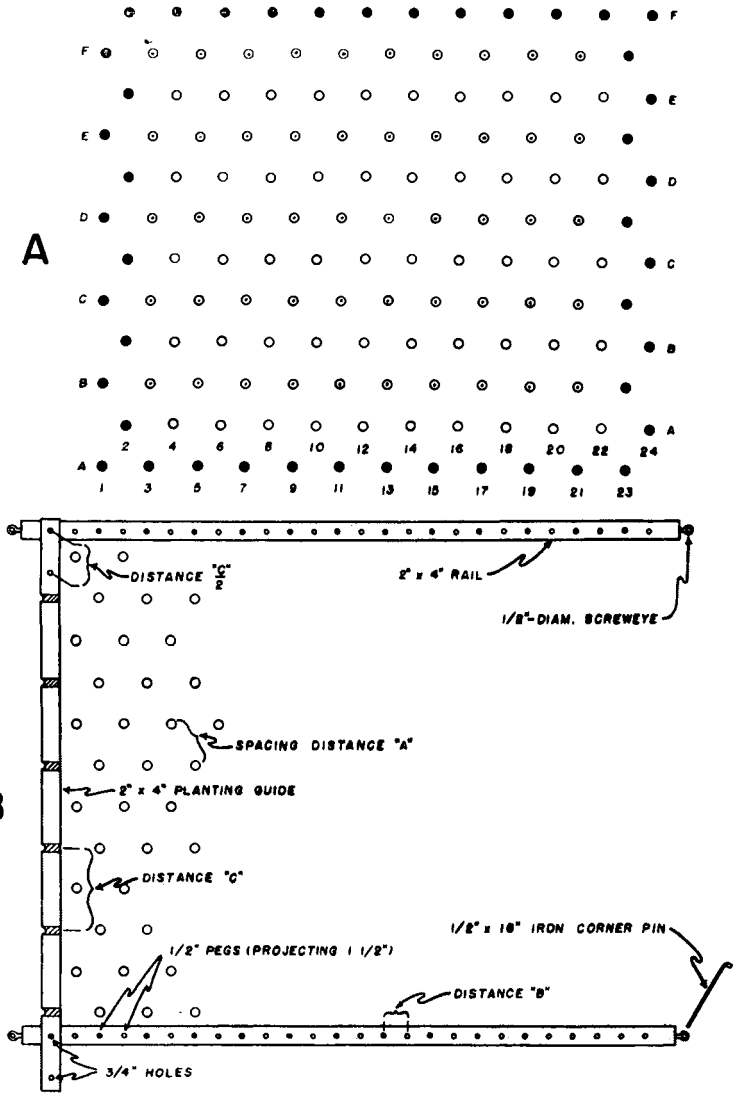

Figure 1. A) A 100-plant plot showing arrangement of plants and numbering system. Rows are numbered 1 through 24, and plants are lettered A through F in each row. Trees around edge of plot (darkened circles) are to minimize edge effect, so there will be a full 100 trees, each with 6 equidistant neighbors. B) Construction details for planting-jig.

plants A through F (Figure 1-A). Thus, in mixed plots, odd-numbered rows are of one species and even-numbered rows of another. If each plot in a plantation is given a number designation, any plant can be specifically located by using a plot-row-letter designation (e.g., 75-18-D would specify plot 75, row 18, plant D).

Table 1. Dimensions for side-rail and planting guide construction for various plant spacings. Plot dimensions just include all trees, and are based on 24 rows of 6 trees each.

A	B	C	D	E
Plant spacing (cm)	Distance between pegs in rails (cm)	Distance between notches in guide (cm)	Plot Dimensions (m)	
			Long side	Short side
10	5	17.30	1.15	.95
15	7.5	25.95	1.73	1.43
20	10	34.60	2.30	1.91
25	12.5	43.25	2.88	2.38
30	15	51.90	3.45	2.86
40	20	69.20	4.60	3.81
50	25	86.50	5.75	4.76
60	30	103.80	6.90	5.72
70	35	121.10	8.05	6.67
80	40	138.40	9.20	7.62
90	45	155.70	10.35	8.57
100	50	173.00	11.50	9.53

(A=desired spacing between plants; B = ½A; C = 1.75 x A; D = 11.5 x A; E = 9.526 x A)

Figure 2. Planting-jig in use. Here one species of a mixed plot is being planted. Planting of the second species in alternate rows is just being started.

It was found a little easier in planting mixed plots, especially at spacings greater than 20 cm., to plant one species and then

shift the planting guide and plant the alternate rows (Figure 2). At closer spacings, however, where there is not room to walk easily between rows, it is desirable to plant both species concurrently and thus have completely clear footing on one side of the planting guide. Color coding helps avoid errors, especially when planting mixed plots. We used a red spray paint to color alternate pegs on the side rails, and one set of holes in the planting guide, i.e., so red holes went over red pegs. A square partitioned polyethylene cleaning bucket works well for carrying two species of seedlings in making mixed plantings.

Grateful acknowledgment is made to Mr. Ronald Parkison, Student Research Assistant, who helped in construction of the original jig, and subjected it to the acid test.

A Preliminary Survey of the Iowa Species of Hypocreaceae and Clavicipitaceae[1]

Lois H. Tiffany and Joseph C. Gilman

Abstract. Recent unusual Iowa collections of members of the Hypocreaceae and Clavicipitaceae are reported. *Scoleconectria polythalama* (Berk.) Seaver on Syringa and Fraxinus, *Nectria coccinea* Fr. on *Juglans nigra* L., *Nectria verrucosa* (Schw.) Sacc. on *Morus alba* L., *Calonectria diminuta* (Berk.) Berl. & Vogl., *Hypocrea citrina* (Pers.) Fr., *Hypocrea patella* Cke. and Pk. are reported for the first time. *Thyronectrioidea chrysogramma* (Ell. and Ev.) Seaver on *Ulmus americana* L. is the first report of this species on this host from Iowa. In addition observations on the life cycles of *Scoleconectria scolecospora* (Bref.) Seaver and *Cordyceps clavulata* Schw. are made.

The Hypocreaceae and Clavicipitaceae were formerly members of the order Hypocreales at the time that the members of this order were those fungi with bright-colored perithecial walls. Seaver, (1909a, 1909b, 1910a, 1910b, 1911) whose treatment of the group recognized two families, the Nectriaceae for those forms in which the perithecia were non-stromatic or formed upon a reduced stromatic cushion; and the Hypocreaceae with the perithecia submerged in a stroma.

As the emphasis in mycology changed from the condition of the perithecial wall to the type of the centrum of the perithecium, the Nectriaceae and Hypocreaceae were united into a single family and the Clavicipitaceae were transferred to the Xylariales

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