THE DENSITY OF PALMS IN TRIANGULAR AND SQUARE PLANTING

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THE preceding article gives an account of various planting systems and their relative merits and demerits. This article which is complementary, is intended to explain the basis of the calculations involved in determining the number of palms that can be accommodated in a particular area for various planting distances in the two main systems of planting, viz., square and triangular. This will be useful to those planters who are averse to the blind use of figures and formulae.

Figure 1 shows two blocks of land of identical shape and size. The crosses indicate the positions of the palms, each in the centre of an imaginary square or rhombus, (according to whether the planting is square or triangular) the length of whose sides is equal to the planting distance. The number of palms which a piece of land can accommodate by each system of planting is therefore equal to the area of the land in square feet, divided by the area of the imaginary square or rhombus.

The area of each square is, of course, the square of the planting distance. The area of each rhombus is given by the formula $d^2 \sin 60°$, where d is the planting distance and 60° is the acute angle of the rhombus. Square planting will thus give *approximately* the following number of palms :—

$$\frac{\text{Area of Land}}{d^2}$$

Triangular planting will similarly give the following :—

$$\frac{\text{Area of Land}}{d^2 \sin 60} = \frac{\text{Area}}{d^2 \times .866} = \frac{\text{Area} \times 1.155}{d^2}$$

Thus the number of palms obtained by square planting (at the same planting distance) multiplied by the factor 1·155 gives the approximate number of palms, which can be put in by triangular planting.

These are only approximations because the land may possess irregular boundaries and as such cannot be divided up into complete squares or rhombuses. It will be noticed from the diagrams however that some of the near squares or rhombuses can carry a palm which will overhang the boundary fence while others are too small to take a plant.

The following conversion rate will be useful to those who wish to make calculations based on the above :—

1 square mile	=	640 acres
1 acre	=	43,560 square feet
1 rood	=	10,890 „ „
1 perch	=	272¼ „ „
1 mile	=	80 chains
1 chain	=	22 feet
1 fathom	=	6 feet