Teagasc Timber Measurement Course

Thinning Assessment Plot calculations - Plot 1

Tree stocking

Plot size = 0.01 HA (100 sq. metres)
Plot width (between 5 rows of trees) = 8 m
100 / width = plot length = 12.5m
Number of trees counted in two rows either side of brash path (mid-point) for length of plot = 28
Number of trees per hectare = 28 x 100 = 2800

DBH (diameter at breast height (1.3 m)) assessment

DBH	NO.	ARITHMETIC	QUADRATIC
7			
8	II	16	128
9	IIIII	45	405
10	IIII	40	400
11	III	33	363
12	IIIII	60	720
13	IIII	52	676
14	II	28	392
15	I	15	225
16			
17			
18			
19			
20			
21			
22			
23			
24			
TOTALS	26 (n)	289 (Ta)	3309 (Tq)

Arithmetic mean dbh = Ta/n = 289/26 = **11 cm** (rounded down)
Quadratic mean dbh = Tq/n = y. 3309/26 = 127. Square root of y (127) = **11 cm** (rounded down)
MEAN DBH (Quadratic) = **11 cm (rounded down)**
TOP HEIGHT = largest girthed tree (15 cm) = **8 m**
FORM HEIGHT(from table) = **2.83 m**
THIN DIAMETER = Mean dbh – 2 = 11 – 2 = **9 cm**
THIN MEAN VOL.TREE = (Thin dia. (9) X Thin dia. (9)) X 0.00007854 X Form height (2.83) = **0.018 m^3**
REMOVE 30% STEMS = Stocking per ha (2800) X 0.3 = Thin stems per ha= **840 stems**
THIN VOL.TO BE REMOVED = Thin stems per ha (840) X Thin mean vol. (0.018) = **15.12 m^3/ha**

Thinning Assessment Plot calculations - Plot 2

Tree stocking

Plot size = 0.01 HA (100 sq. metres)
Plot width (between 5 rows of trees) = 8 m
100 / width = plot length = 12.5m
Number of trees counted in two rows either side of brash path (mid-point) for length of plot = 25
Number of trees per hectare = 25 x 100 = 2500

DBH (diameter at breast height (1.3 m)) assessment

DBH	NO.	ARITHMETIC	QUADRATIC
7			
8			
9	I	9	81
10	II	20	200
11	IIII	44	484
12	IIII	48	576
13	II	26	338
14	III	42	588
15	IIII	60	900
16			
17	II	34	578
18	III	54	972
19			
20			
21			
22			
23			
24			
TOTALS	25 (n)	337 (Ta)	4717 (Tq)

Arithmetic mean dbh = Ta/n = 337/25 = **13 cm** (rounded down)
Quadratic mean dbh = Tq/n = y. 4717/25 = 127. Square root of y (188) = **13 cm** (rounded down)
MEAN DBH (Quadratic) = **13 cm (rounded down)**
TOP HEIGHT = largest girthed tree (18cm) = **10 m**
FORM HEIGHT(from table) = **3.69 m**
THIN DIAMETER = Mean dbh – 2 = 13 – 2 = **11 cm**
THIN MEAN VOL.TREE = (Thin dia. (11) X Thin dia. (11)) X 0.00007854 X Form height (3.69) = **0.035 m^3**
REMOVE 30% STEMS = Stocking per ha (2500) X 0.3 = Thin stems per ha = **750 stems**
THIN VOL.TO BE REMOVED = Thin stems per ha (750) X Thin mean vol. (0.035) = **26.25 m^3/ha**

Thinning Assessment Plot calculations - Plot 3

Tree stocking

Plot size = 0.01 HA (100 sq. metres)
Plot width (between 5 rows of trees) = 8.4 m
100 / width = plot length = 11.9 m
Number of trees counted in two rows either side of brash path (mid-point) for length of plot = 25
Number of trees per hectare = 25 x 100 = 2500

DBH (diameter at breast height (1.3 m)) assessment

DBH	NO.	ARITHMETIC	QUADRATIC
7			
8			
9	II	18	162
10	I	10	100
11	II	22	242
12	II	24	288
13	IIII	52	676
14	IIIII I	84	1176
15	III	45	675
16	III	48	768
17	IIII	68	1156
18	I	18	324
19	II	38	722
20			
21			
22			
23			
24			
TOTALS	30 (n)	427 (Ta)	6289 (Tq)

Arithmetic mean dbh = Ta/n = 427/30 = **14 cm** (rounded down)
Quadratic mean dbh = Tq/n = y. 6289/30 = 210. Square root of y (210) = **14 cm** (rounded down)
MEAN DBH (Quadratic) = **14 cm (rounded down)**
TOP HEIGHT = largest girthed tree (19 cm) = **11 m**
FORM HEIGHT(from table) = **4.13 m**
THIN DIAMETER = Mean dbh – 2 = 14 – 2 = **12 cm**
THIN MEAN VOL.TREE = (Thin dia. (12) X Thin dia. (12)) X 0.00007854 X Form height (4.13) = **0.046 m^3**
REMOVE 30% STEMS = Stocking per ha (2500) X 0.3 = Thin stems per ha = **750 stems**
THIN VOL.TO BE REMOVED = Thin stems per ha (750) X Thin mean vol. (0.046) = **34.5 m^3/ha**