Stand Prediction in Crops of Mixed Species and Age

Stand Prediction

- Development of models for even-aged plantations of single species- rapid

- Knowledge on inter-specific and inter-size growth relationships is inadequate in uneven aged forests of mixed species arising from natural regeneration

- M. Henri Boilley, a famous Swiss Forester introduced a method **Methode du Controle (Control or Check Method).**

- Established increment of the forest by 100% inventories by 3 categories- the large, the medium, the small sized trees.

Methode du Controle

1. the classes of diameter at breast height were grouped into three major categories of large, medium and small trees. A separate increment % was calculated for each.
2. data derived from a one parameter volume table.
3. from an inventory of the compartment made in 1970
4. col. 2 X col. 3
5. From an inventory of the compartment made in 1975

The Calculation of increment in the Methode du Controle

EXAMPLE 51 The calculation of increment in the Méthode du Contrôle

Dbh (1)	Vol./tree Silve (2)	1970 No./ha (3)	1970 Vol./ha Silve (4)	1975 No./ha (5)	1975 Vol./ha Silve (6)	Felled No./ha (7)	Felled Vol./ha Silve (8)	Recruits No./ha (9)	Recruits Vol./ha Silve (10)	Revised 1975 total No./ha (11)	Revised 1975 total Vol./ha Silve (12)	Volume inc./ha in 5 yr Silve (13)	Annual volume increment per ha Silve (14)	Annual volume increment per ha % (15)
75	5.56	–	–	1	5.56	–	–			1	5.56		*Large trees*	
70	4.93	1	4.93	–	–	–	–			–				
65	4.32	–	–	–	–	–	–			–				
60	3.72	2	7.44	5	18.60	–	–			5	18.60			
55	3.20	5	16.00	6	19.20	2	6.40			2	6.40			
Total large trees		8	28.37	12	43.36	2	6.40	6	19.20	8*	30.56	2.19	0.44	1.6
									Recruits	6	19.20		*Medium trees*	
50	2.70	11	29.70	7	18.90	1	2.70			8	21.60			
45	2.22	13	28.86	17	37.74	5	11.10			22	48.84			
40	1.66	27	44.82	27	44.82	1	1.66			28	46.48			
35	1.14	32	36.48	41	46.74	4	4.56			19	21.66			
Total medium trees		83	139.86	92	148.20	11	20.02	26	29.64	83*	157.78	17.92	3.58	2.6
									Recruits	26	29.64		*Small trees*	
30	0.12	66	47.52	52	37.44	5	3.60			57	41.04			
25	0.37	69	25.53	83	30.71	13	4.81			96	35.52			
20	0.16	117	18.72	94	15.04	19	3.04			73	11.68			
Total small trees		252	91.77	229	83.19	37	11.45	40		252	117.88	26.11	5.22	5.7
Total		343	260.00	333	273.75	50	37.87			343	306.22	46.22	9.24	3.6

Excluding recruits

*This total is made the same as that in the earlier inventory. If no fellings had taken place there would have been 12 + 2 – 14 trees in the large-size class in 1975. Therefore 14 – 8 – 6 trees had been recruited from the medium-size class. Similarly, if there had been no fellings or recruits there would have been 92 + 11 + 6 – 109. Medium-sized trees: 1975. Therefore 109 – 83 – 26 trees had been recruited from the small-size class.

Contd…

6. col. 2 X col. 5

7. From the compartment records of outturn for the period 1970-1975

8. col. 2 X col. 7

9. only to be completed in the line of the totals for the large and medium trees = total of col. 5 + total of col. 7 – total of col. 3, i.e. $V_2 + F - V_1$ or the number of trees of medium size in 1970 recruited to the large tree category, etc.

10. col. 2 X col. 9 for totals only.

Contd…

11. has to be completed for the total line of the large trees first and must equal the corresponding total in col. 3.

- Then starting with the largest diameter class of the large trees, col. 11 = col. 5 + col. 7 until the sum of these totals equals the figure previously entered in the total line. The balance of trees in the large tree diameter classes has been recruited from the medium category and this balance is entered in the blank line at the head of the medium tree category in col. 11 and labelled ‘recruits’ in the adjoining space in col. 10

12. col. 2 X col. 11
13. completed for the total line of the large, medium and small tree category only = col. 12 – col. 4
14. col. 13 divided by the period of years between the inventories
15. column 14 expressed as a % of col. 4