



1. Structure and dynamics:

Even-aged stands of NS interspersed with XBSL. Likely to have originated from XBSL infill in NS plantation, mainly with BI, WIL, ASP, ROW. Minor species may also include any others of category A. Species may be mixed intimately, or in small to large groups.

Species distribution: NS 70 - 90%XBSL 10 - 30%minor species: < 10%</th>The XBSL component will often be the result of NS having partially failed at restocking. Thus, the reasonsfor failure need to be established in order to avoid recurrence. Transformation to another FDT may beconsidered, otherwise stands will largely be managed under a clearfell-and-restock regime.



3. Management objectives: Economic (GYC > 10):

NS – sawlogs, target DBH > 50cm in 80 – 120yrs

XBSL – optional

Environmental and social:

XBSL elements act as soil improvers, increase habitat diversity and improve stability with regard to risk factors over pure NS stands. The mixed character of the stand is likely to be attractive and popular for amenity and recreation.

FDT 1.2.7 NS and short-lived broadleaves (XBSL)



4. General management principles for the FDT

This FDT should be used where clearfell-and-restock scenarios with NS are envisaged and some species diversity is desirable. The role of XBSL may therefore be mainly for environmental and social benefits, however economic opportunities arising from biomass / timber production should be used wherever possible. The FDT may also be the result of prolific XBSL infill in NS plantations; in this case a review of the FDT may be required. Generally NS and XBSL are not compatible (CS = 3) to grow in mixture; however, most XBSL will be able to keep up with NS growth rate and could be maintained in groups with frequent thinning. Management of young stands should aim to achieve canopy cover and maintain even growth of all stand components. Rare stands originating from dense natural regeneration are likely to require respacing in order to steer species composition and develop good tree stability, which is essential for retaining thinning options. A no thinning approach is possible but will limit management options and achievable target DBH. NS will respond well to thinning throughout its lifetime but the thinning of XBSL must focus on early interventions if sawlog dimensions are to be achieved. Thinning should start at around 10 - 12m top height, generally as crown thinning. Thinning should aim to maintain species composition and canopy cover.

5. Timeline

stage	H ₁₀₀ [m]	intervention
Establishment		• Planting of 2000 – 3000 trees/ha, XBSL often from natural regeneration.
Young stand	< 3	 Protection against animals / plants as necessary. Respacing if N > 3000 trees/ha at 1 - 2m tree height. Reduce N to 1500 - 2500 trees/ha; in areas of difficult access, along exposed edges and on sites of high wind damage risk reduce N to 800 - 1000 trees/ha. Clearing of any damage caused by felling / extraction of overstorey trees. Promotion of minor species as required.
Thicket stage	3 - 10	Generally no interventions.
Pole stage	10 - 12	 First selective crown thinning, mainly removing dominant / co-dominant trees with visible defects, coarse branching or poor shape. Selection of 150 – 250 FC trees/ha (NS + XBSL).
Pole to small timber stage	12 – 20	 Continue crown thinning at height growth intervals of 3m. Focus on competition status of FC trees and maintain target species composition.
Timber stage		 Monitor crown length and h/d ratio in NS (stability indicators), species composition, height growth and canopy cover in NS and XBSL (competition indicators), and thin accordingly. Apply crown thinning as long as necessary for benefits of FC trees and stand stability, otherwise gradually change thinning type to low. Plan for final harvesting when FC trees approach target DBH. NS is unlikely to regenerate naturally, however, opportunities to take advantage of natural regeneration may arise on longer rotations and should be used where practical.
Final harvesting and regeneration stage		Carry out harvesting / restocking operations according to agreed method.