A prolific dam breed suited to intensive prime lamb production is being developed by the New South Wales Department of Agriculture. The breed called "Hyfer", will offer higher production and greater flexibility under good management than the Border Leicester x Merino (BLM). This is to be achieved through high fecundity and year round joining ability with the ultimate aim of rearing two lambs per ewe every eight months.

Considerable improvement in efficiency of lamb production can be achieved by increasing number of lambs weaned and lambing frequency. The judicious use of available genotypes and selection will increase litter size and length of the breeding season. An extended breeding season allows greater flexibility in lamb production and marketing, with a further option of accelerated lambings under good management. The tiered crossbreeding structure in the industry lacks vertical integration and fails to create incentives for genetic improvement of lamb production. Rapid improvement is further hindered by the hierarchical structure in the pure breeds and their varying selection goals. Thus, selection for improved lamb production within a self replacing breed will provide more rapid cumulative genetic gains.

The "Hyfer" is being developed from Dorset (D), Booroola Merino (B) and Trangie Fertility Merino (T) sheep. From 1978-81, 1780 D ewe single sire joinings to 24 B and 26 T rams and in 1981, 270 T ewes to 9 D rams produced 630 surviving F₁ ewes. F₁ sheep are being reciprocally crossed at Cowra in autumn 1980-84 to produce F₂ progeny (5DhBfT). Fertility of F₁ ewes was 99 and 98 percent and litter size 1.59 and 1.79 in 1980 and 1981. Litter size of 2 and 3 year old BD and TD ewes in 1981 was 2.11 and 1.48. Ovulation rate in February 1981 ranged from 1.36 for 8 month old to 2.33 for 31 month old F₁ ewes. The ovulation rate was .42 to 1.23 higher for BD than TD ewes. Following the 1981 spring lambing, 61 percent of 2 and 3 year old F₂ ewes exhibited oestrus within eight months of the previous joining, whilst still rearing lambs.

Commencing in 1982, F₂ ewes are being joined 8-monthly in February, October and June over two years prior to selection into a nucleus flock to breed replacements. Selection will be based on total weight of lamb weaned, with performance from each joining standardised to account for seasonal differences in performance and variation. Dam performance is the primary trait for ram selection, within sire lines to minimise in-breeding. Growth rate, dystocia, horns and appearance are important to industry acceptance and production, and are also considered in ram selection. Further research into the relative importance of the various components of lamb production and the potential for use of indirect traits is being pursued and will subsequently be used to refine the selection program. Unselected ewe progeny of Nucleus ewes will be available for joining in evaluation trials with BLM ewes from 1986. These will involve various management systems at locations representing a range of environments used for prime lamb production throughout New South Wales.