Summary

The Eastern Plains of Colombia, where the present study was conducted, are undergoing a dynamic process of technological change, the main innovation being to increasingly replace native savannas by incorporating new pastures, mainly of *Brachiaria humidicola* and *B. dictyoneura* cv. Llanero, and, to a lesser extent, of *B. decumbens* cv. Basilisk. The results presented here are from long-term experiments conducted at the Carimagua Research Station and from shorter term observations carried out on collaborating farms of the region. When reproductive performance was evaluated in pastures with a stocking rate of one head per hectare, periodic adjustments were made to maintain the levels of forage-on-offer as representative of good pasture management. In all the experiments, the animals received, on an ad lib. basis, a supplement of complete mineralized salts containing 8% P. Recorded reproductive indexes should be considered as minimum values, capable of being improved. With one exception, continuous mating was always used, with a minimum of 3% of the bulls rotated at intervals of 3 to 4 months, before their revision. Heifer weight at mating varied slightly among experiments and farms. In all cases, pure Brahman bulls were used, and in all experiments and farms, both the nursing heifers and cows were pure Brahman or, if their pedigree was not assured, that race predominated. Without exception, calves were weaned at an average age of 9 months. The results clearly suggest that, within a broad range, weight is a highly important variable in the expression of puberty and in the probability of conception. These results also confirm the hypothesis that puberty in beef heifers always occurs at the same weight, regardless of

previous growth regimes. The study also showed that several alternative strategies can be followed to consistently achieve calving rates between 60% and 80% in grazing systems. Systems permitting growth rates as high as those obtained in the experiment with *B. decumbens* do not run the risk of overfeeding the heifers (which would probably damage subsequent milk production) and, at the same time, they ensure an adequate mammary growth between puberty and first calving. However, judging by the weights of calves at weaning, heifers submitted to dietary restrictions in lower quality pastures, such as *B. humidicola*, are obviously capable of achieving the same results if, beginning with first conception, they have access to better quality pastures. A most important aspect of the trials presented here is that the experimental animals shifted within relatively narrow ranges of adult weight, and weight modifications of 30 to 50 kg can have a highly significant impact. These results show that, in the Eastern Plains of Colombia, sufficiently high reproductive efficiency rates can be achieved by managing the forage resources available for animals and using their weight as an indicator of nutritional status. Levels of reproductive performance considerably higher than normal levels can also be achieved through a variety of grazing strategies that ensure a minimum weight at first conception as well as at subsequent conceptions. Such results are largely independent of the regime on which replacement heifers are raised.