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## Crops for Cattle – Increasing the efficiency of north Australian cattle production systems through using local crops to improve dry season weight gain

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**Introduction** The Crops for Cattle project commenced in 2023 and aims to foster intensification of the northern cattle industry by integrating northern cropping and cattle production systems to increase weight gains in cattle during the dry season. This will achieve a higher proportion of steers being turned off after one post weaning wet season and a more efficient heifer performance from increased pre-mating weights.

**Material and methods** There are three main aspects:

1. Feeding trials: conducted on 10 commercial properties and two research stations to document the increases in dry season cattle liveweight gain (LWG) from feeding crop products and supplementary feeds produced in northern Australia. This information is needed for the other activities. Preliminary data from the first year of a feeding trial at Victoria River Research Station (VRRS) is reported in this paper. In early June 2023, Brahman weaners were randomly allocated (stratified for weight) to two treatments; FED ( $n=54$ ) and CONTROL ( $n=104$ ) so that the groups had similar mean liveweights (LW) and the stocking rate matched the carrying capacity similarly in both paddocks. They grazed in similar paddocks and were managed in the same way except that the FED group were fed soyabean based pellets (Ridley) in the paddock for 97 days from 6/9/2023. The pellets were 31.8% protein and were fed at a rate of 1.27 kg/head/day. LW was recorded at the start and end of the feeding period after an overnight feed and water curfew.
2. Economic modelling: The whole-of-herd impacts of increased dry season growth will be examined on the structure, productivity and profitability of cattle herds in northern Australia. This will enable an assessment of the effects of variation in the sale price of cattle (\$/kg) and supplement cost (\$/t) on the profitability of the feeding strategies. One of the outputs will be grids showing the feed prices at which dry season feeding options become profitable at different cattle prices, for feeds that give different amounts of dry season LWG. This will ensure that the findings of the project remain relevant when cattle and feed prices fluctuate.
3. The potential for the feeding strategies to become approved methods for obtaining carbon credits will be explored.

**Results** The project is only in the early stages and so there are not many findings to report at this stage. Preliminary findings from the first year of the feeding trial at VRRS were that the FED group gained an average of 54 kg over the 97 day feeding period (0.56 kg/day), while the CONTROL group gained an average of 10 kg (0.10 kg/day) over the same period. The cost of the pellets (excluding transport and labour) was \$1.21/kg and on average the animals consumed a total of 123.6 kg of pellets each over the 97 days. At this feed price, the cost of gain for the extra 44 kg LW gain was \$149.52. Therefore, the cattle price would need to be above \$3.40/kg for the strategy to be profitable, although it remains to be seen how much of the benefit will be retained after the wet season when the animals would normally be sold. This sort of information will be used to assess the profitability of the different feeding strategies being studied in the project.

**Conclusion and implications.** The project is still in the early stages so there are no conclusions yet, but an example is given of how the feeding trials will be used to provide producers with the improvements in liveweight gain they can expect from different feeds, and the feed cost/cattle price combinations at which they will be profitable.

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