

Calculations

Pasture growth:

Pasture Growth (current) = ((PG for set land type @ TBA * Multiplier at LC) * (Area of site * Tree Cover %)) + ((PG @ TBA 0 * Multiplier @ LC) * (Area of site * Inverse Tree Cover %)) / Site Area

If A condition TBA < current TBA

Pasture Growth (potential) = ((PG @ set A condition TBA * Multiplier at LC of A) * (Area of site * Tree Cover)) + ((PG @ A condition TBA of zero * Multiplier @ LC of A) * (Area of site * Inverse Tree Cover)) / Site Area

If A condition TBA > current TBA

Pasture Growth (potential) = ((PG @ current TBA * Multiplier at LC of A) * (Area of site * Tree Cover)) + ((PG @ A condition TBA of zero * Multiplier @ LC of A) * (Area of site * Inverse Tree Cover)) / Site Area

Long Term Carrying Capacities

LTCC (current) = 3,650 / (PG current * Utilisation rate)

LTCC (potential) = 3,650 / (PG potential * Utilisation rate)

Forage Budget (basics)

Supply Equations

Detachment (kg/ha) = start yield x detachment % / 100

Unpalatable (kg/ha) = (start yield – detachment) x unpalatable % / 100

Total useful pasture (kg/ha) = start yield – detachment – unpalatable – residual + anticipated growth

Demand Equations

Dry stock AE multiplier = average animal weight^{0.75} / 450^{0.75}

Wet stock AE multiplier = 1.35

Dry Matter Intake = DMI + DMI increase with supplement

Demand per hectare for period = DMI * number of AEs * length of grazing period / paddock size

Results

Number AE the paddock will carry to the end date?

= (total useful pasture * paddock area) / (DMI/AE/day * length of grazing period)

Days feed will last with current AEs?

= (useful pasture * paddock area) / (DMI/AE/day * total AEs)

Pasture eaten as a % of useful pasture

= demand per hectare for period / total useful pasture

Glossary

- DM. Dry Matter (Kg)
- PG. Pasture growth
- TBA. Tree Basal Area m²/ha

- Multipliers at LC. Discount applied to pasture growth outcomes for ABCD Land Condition (LC). A=1, B=0.75, C=0.45, D=0.2
- LTCC. Long-term carrying capacity
- 3650 Kg DM. Average annual Adult Equivalent (AE) feed consumption (assuming 2.2% of body weight for 450kg dry beast = 10kg Dry Matter (DM)/ day * by 365/year = 3650)
- Utilisation rates. Safe percentage based on land type selected. Utilisation percentages can be found on the land type sheets <http://futurebeef.com.au/topics/grazing-land-management/land-types-of-queensland/>