Sample assessment 2020

Stimulus book

Agricultural Science

Paper 2

Queensland Government | QCAA Queensland Curriculum & Assessment Authority

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Stimulus 1

A family-owned business runs a breeding operation and fattens cattle destined for feedlots in Central Queensland. They own 8500 ha and lease a further 12 750 ha across three properties. They run a herd of tropical crossbred cattle that they join to Angus and Wagyu sires, i.e. early-maturing breeds of cattle.

- Property A consists of heavy-cracking clays with 20% blackbutt and bean tree scrub soils and an expected annual rainfall of 660 mm. This property has also had considerable work performed on improving pastures, with improved legume and grass pasture species (e.g. buffel grass, butterfly pea, stylo species and Bambatsi panic) now dominating.
- Properties B and C consist of bluegum forest soils to lighter forest country. These properties are in a highly variable rainfall area, with annual averages between 760 and 1010 mm. Pastures on these properties are developed and range from native forest grasses to naturalised and improved legume and grass species, e.g. Rhodes grass, Wynn cassia, stylo species, para grass and pangola grasses.

All properties have been fully fenced and divided into appropriately sized paddocks, with animals accessing natural watercourses, dams or, in limited cases, water troughs. In the past year, the manager has noticed an increasing problem with invasive weed species, including parthenium. They have also noticed significant dung beetle activity on all properties.

Stimulus 2

A north-west Queensland grazing operation consists of 20 000 ha. An aquifer is located under the southern half of the property. Annual rainfall in this region is 400 mm, and this operation usually runs 2000 head of cattle for breeding purposes. As the region has received below-average rainfall for the past four years, breeder numbers have been decreased to 1400.

Despite the ongoing drought conditions, productivity remains high, with excellent calving and weaning rates of 93% and 87% respectively.

The owners of the grazing operation are currently reaching their goal of keeping calf survival between 80% and 90% for their herd. They predict that they could lose an extra $104 000 ‘in the pocket’ each year if weaning rates fall below 80%.

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