Cows: Basics Of Cattle Breeding In Queensland

Question 1:

Go to https://www.mla.com.au/prices-markets/Trends-analysis/livestock-distribution-maps/ scroll down and click on the Cattle Herd Distribution Map. Choose one region from the map and describe the environmental features of this region (e.g. climatic conditions, vegetation etc.). Include a map of your region (and it’s relative location in Australia) in your fact sheet.

Desert Channels:

Climatic Features =

• The Queensland Desert Channels have a wide range of climates ranging from dry monsoonal seasons to hot arid conditions in the south, temperatures can get as high as 45°C degrees midday in summer. However, during winter temperatures get as low as -2°C. Annual rainfall varies quite a lot depending on topography and vegetation, etc, but it's usually around 326mm. Due to the high heats though, the evaporation rate is more than five times the annual rainfall. Making for a depletion of soil moisture.

Soil Features =

• Due to the variation in rainfall, soils are very different. It ranges from sands in the Simpson Desert, brown clays at the Mitchell Downs area and complex earth soils in the Mulga Lands. However as mentioned before the high heat means a fast evaporation rate creating hard cracked clay in regions.

Vegetation =

• Mitchell grasses are one of the main grasses planted due to their high heat tolerance and extract water form soil that is very dry. Provided that the summer rainfall is adequate, Mitchell grass can survive long drought seasons. These reasons mean it responds well to heavy grazing, making it a strong viable option for the Desert Channels.

• Another common option for this area is Buffel grass, this cheap option aids the control of soil erosion which is a growing issue from the parched soils. It is also tolerant against drought, fire and heavy grazing making it suitable for the rough Desert Channel environment.

Question 2:

Select a breed of cattle that is suitable to your area, provide a description of the breed and describe the characteristics that make this breed particularly well suited to your chosen region.

Brahman

Brahman is often classified as the 'typical Bos Indicus' cow, it shows a large hump, loose skin and floppy ears. It tends to range from light grey to dark black but can be seen in shades of black and red. The breed originated from USA in the early 1800's, Brahman officially came to Australia in 1933, its popular growth has resulted in it being one of the most liked cows across Australia and the number is over 26 million head. In 2001 brahman genetics had made over $8.1 billion to the Queensland economy alone.

The brahman's hump is a smart adaptation that allows the cow to store a large quantity of water over a long period of time. The water is collected for storage and used only when needed. This means that the Brahman type are best suited for droughts which occur a lot in North Queensland. Their ability to store water means they never have to dehydrate, unless they run out of stored water however this would take a long time. Another adaptation is its thick skin that prevents most ticks and pests, a dangerous problem in Northern Queensland now is their ticks. However, Brahman's thick skin create a protective barrier against the ticks so they can't dig into the flesh. This proves to be another useful characteristic for the region they are best suited for.

Question 3:

Selective breeding in cattle allows the farmer to choose desirable characteristics in his herd and manipulate the reproduction process so that these characteristics are passed on to future generations. Two methods for controlling the reproduction process in cattle are Artificial Insemination (AI) and Embryo Transfer. Describe in detail, with diagrams, the process of artificial insemination (AI) OR embryo transfer and clearly state the advantages and disadvantages of your chosen method.

Artificial insemination basically consists of taking semen from a cow and placing it in a fertile female cow. They do this by using a fake vagina to collect the male sperm, this then gets frozen into straws that are kept in storage to be sold or used. Once the straw is needed it is inserted manually into the female's cervix which is then passed to the uterus where it grows into a newly born baby. To successfully perform artificial insemination the female cow must be on 'heat' meaning that she is ready to give birth. The main way to find out which cows are on heat is a process called 'heat detection' were a specialist in the area comes every 2 days to check which cows can be used for insemination. This whole process is used for advantages such as:

- Genetic improvement – is used to improve physical traits of cows such as less muscle more meat, or bigger bodies
- Access to breeds that are not available locally – this means more variation so that farmers could potentially get more money form a cow that is not available in their region

Some disadvantages are:

- High Cost – costs are quite expensive for the equipment, AI technician, tool, etc.
- Chance of a spread of genital disease – if the bull is not properly tested for diseases and or pests some diseases could spread.

Question 4: Pests and diseases can reduce the productivity of cattle and it is important to prevent or manage diseases in herds effectively. Discuss a specific pest OR disease of the breed of cattle you have selected and provide a detailed explanation of how you would try to

treat and prevent this pest or disease. Do not do bloat.

Vibriosis is an increasing problem in northern Queensland, it is a sexually transmitted disease that can cause infertility and pregnancy defects. It is caused my mating bulls to susceptible cows, the best treatment is too immediately vaccinate the infected cow.

- Pfizer's Vibrovax is an effective method that attacks to the two main biotypes in the disease. This is proven to reduce infected cows and increase the pregnancy rate.
- To prevent this disease from happening it is smart to check new breeding cows into a herd as they might carry the disease, but also to vaccinate all bulls before the disease is found. In Queensland vaccination in cattle is not that common as the yards are so far apart and most bulls are immune to many diseases, so it is believed to be inefficient. But this disease is a growing concern and vaccination is the best way to stop it.

Question 5:

Discuss the two different breeding systems used in beef cattle production, namely cross breeding and line breeding. In your answer define the term hybrid vigour, give an example of hybrid vigour using two different breeds of cattle.

Line breeding is a breeding system used to isolate a specific 'generation/line', they only breed cows in the same line to make sure they pass on the same phenotype (physical expression) this can give us an expected good quality physical trait amongst all cows. However cross breeding uses bulls and cows from different breeds to create a new breed. This allows for a risked improvement in certain traits such as the growth rate or marbling in Angus cattle. Both methods have different advantages and disadvantages, line breeding is the safe route as you always have a guaranteed good quality cow, however through cross breeding the same traits can be heightened to fit with customer demand resulting in a bigger profit from line breeding.

Hybrid vigour is the resulting progeny from crossbreeding has better characteristics than its parents. For example, a cow with a lot of fat and another cow with a fast growth rate breed together, this would result in a newborn cow that has both a faster growth rate and more fat, resulting in better characteristics than the parents. Hybrid vigour usually affects a lot of things such as health and strength, but this was one particular example.

Question 6:

Discuss, in detail, TWO methods of assessment you could use to evaluate the health of your herd of cattle.

By simply fat scoring we can determine the relative health of a herd of cattle, fat scoring allows us to see most things such as diseases, eating problems, etc. If the cows back legs are together it means they are skinny and should be fatter according to their age. Fat scoring could determine if a cow is eating or not, which can then tell us any problems it might have.

Secondly, the temperament of cattle is also another effective method of evaluating the health of a herd of cattle. Temperament shows the cows tolerance to certain things which can be used as a way of measuring its health. For example, recording flight time can shows us if a cow has

good temperament and therefore good health. By recording the time one cow gets from a head bale to a 10m we can use this as measurement of temperament. If the bull was fast and had a short time it could means that the bull is angry or sick, which is a sign of bad temperament.

Question 7:

Farmers often maximise efficiency and production at the expense of the environment. Select and discuss ONE way cattle farmers can make your region more sustainable in the long term. Why is it important to look after the environment?

In Queensland there is a lot of available land for farmers, it is important that to use this land so that we can make it sustainable. Farmers should only have enough land for their amount of cattle. This means that excess land isn't wasted on cattle which produces extra methane hurting the environment. By limiting land use, we make a sustainable environment that is safe for the long term. It is important to keep the environment safe as it affects our living. The more we pollute the environment with harmful gases such as methane, means that we will breath in more and more dangerous toxins that damage our health. So, caring for the environment means maintaining a healthy lifestyle for all living creatures on Earth.

1. Cattle Breeds: Brahman 2019, NSW Government, NSW, viewed 29 August 2019, .
2. Vibriosis n.d., Pfizer, pdf, viewed 29 August 2019, .
3. Land management for livestock farms 2016, Queensland Government, Queensland, viewed 29 August 2019, .