

Blazing or grazing – the great fire debate

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“In the African grasslands and savannahs, fire does not contribute to net elevated levels of carbon dioxide. This is not the same as using fire to convert tropical forest to cultivated pastures.” Prof Trollope acknowledges that misuse of fire can be damaging and costly and emphasises that burning is a specific tool to be used for specific purposes. Routine burning, carried out as a seasonal habit, can lead to long-term, negative changes in grassland composition. Many farmers habitually burn without thoroughly understanding what they are doing.

“Farmers are people of habit and like to do things on a routine basis. The practice among farmers in the sourveld grasslands is to burn every four years to remove moribund and unpalatable grass material and to prevent shrub species encroachment. “When a grassland is burnt too often the cover declines, resulting in accelerated soil erosion. It also leads to a predominance of pioneer/Increaser II grasses, lower canopy cover, diminished species diversity and veld condition.”

Prof Trollope says it is better to have a variable burning frequency in response to variations in rainfall and stocking rate, and to base decisions on the ecological status of the veld. “We must clearly understand the reasons for burning, the condition of the veld and how to manage the veld after burning,” he explains.

“Burn when the grass is dormant (in winter) and burn as close to spring as possible so that the grass regrowth is fairly quick,” says Prof Trollope. “The least damage is done when grass is dormant. When grasses frost off in winter their growing points are at soil level away from the impact of the fire. If growing points are elevated there will be high mortality from fire.”

Prof Trollope emphasises that farmers should be cautious around fire and ensure that there are adequate firebreaks, sufficient well-trained personnel and equipment. “Farmers should familiarise themselves with the National Veld and Forest Fire Act (No 101 of 1998),” he adds.

Temperature and weather conditions are critical

COOL BURN

To remove moribund and unpalatable grasses plan a cool fire. The heat intensity of a fire is determined by fuel load, air temperature, relative humidity, grass curing and wind speed. Moribund veld with a grass fuel load of >4 000 kg/ha has sufficient fuel for a fire. Burn when the sward is dormant, after the first rains. Set the fire when the air temperature is less than 20°C and the relative humidity above 40%.

These conditions are good for a cool burn. Wind speed should be a maximum of 15km/ hr but 10km/hr is more ideal. A cool burn will achieve a ‘mosaic’ or ‘patch burn’ effect, irrespective of the size of the land. Patch burning results in a mosaic of burnt and unburnt areas, which reduces the fire hazard and provides biodiversity ‘islands’ for a range of species.

HOT BURN

When burning woody thickets and species such as renosterbos (*Elytropappus rhinocerotis*), a hot fire is required with temperatures of 25°C and above and a relative humidity less than 30%. In hot, dry conditions, like those of a Berg wind, a ‘clean’ burn can be achieved. High temperatures cause combustion to take place more readily and the flammable material does not have to absorb heat energy to be raised to ignition temperatures. A fire of this intensity will kill the upper canopy in trees and shrubs up to a height of 3m and make vegetation available for shorter browsers.