

# Bell Equipment develops a Mulcher for South African conditions

**Bell Equipment has once again listened to its customers' needs and involved them in developing a niche solution, the Bell M350 Mulcher, which caters to the forestry industry and has been specially geared for South Africa's hot and dusty climate.**

According to Bell Equipment's Chief Engineer: Agricultural and Alliance Products, Ian Kramer, the machine is in response to foresters moving away from the slash and burn practice of land clearing in favour of mulching as a more environmentally responsible method of removing biomass. There are tangible business benefits to mulching; it not only reduces the time between harvesting and replanting but the mulch provides nutrients for the young trees. "We were approached by some of our customers who have tried traditional mulchers developed for the wetter climates of Europe and North America. These units typically don't cope well with our harsh, dry conditions, where the combination of wood fibre and dust tends to clog up the cooling pack causing overheating, so we were asked to develop a solution better suited to local applications."

"Working with our customers, we adapted the Mulcher for our conditions by repositioning the cooling pack at the back of the machine, incorporating screening to keep the debris out and fitting a filtration system to filter out the dust and prevent it from reaching the cooling pack. We have demonstrated that our machine can operate in ambient temperatures of 45° Celsius as it worked in the Kwambonambi area of northern KwaZulu-Natal in the middle of summer where temperatures often peaked over this, with no incidents of overheating."

Like traditional mulchers, the cab is enclosed and filtered via the air conditioner to keep the workspace dust-free. The cab is mounted further forward for better visibility of the head,

similar to a combine harvester. Bell opted for a FAE head from Italy as they are one of the most prominent manufacturers, preferred by customers, and spares are readily available in the country.

Ian continues: "The Bell M350 generates 261kW of power. During the design phase we interacted with customers and looked at competitor machines and found that these machines were fitted with larger mulching heads that required more power. However, the heads weren't being

supplied with the full power requirement so the performance wasn't as good as it could be. We have used a slightly smaller head so that we could give the head the full power that the head manufacturer requires. By allowing the head to run at more optimal performance levels, our machine is more effective at mulching."

The Mulcher is a four-wheel-drive machine with a solidly mounted front axle and a steering rear axle, that pivots to keep all wheels on the ground on undulating terrain. The engine, located just behind the cab, drives three hydraulic pumps that are mounted underneath the cab.

During the design phase, Ian and his team focused on service accessibility. Therefore, the hydraulic charge filters, fuel filter and air conditioner intake filter are all easily accessed through the bonnet side doors. The engine oil filter and air intake filter

are also within easy reach in the engine compartment. The engine and air conditioner pre-cleaner are above the bonnet and coolant filling is done through the top of the bonnet.

Another important design consideration was the width of the machine. Imported units are about 2,8m wide and have to be transported as an abnormal load, requiring special load permits and increased transport costs, but the width of the Bell M350 is less than 2,6m and can be transported on a normal low bed. "Small details like this make a huge difference to our customers," says Ian.

According to Ian, independent studies by a large forestry company have shown that, depending on the operating conditions, the Bell M350 delivers between 18 and 23% better fuel burn than competitor machines while productivity is on par, at around 1,8 to 2,5 hectares a day.

"At a lower capital investment, this means that our machine has a lower total cost of ownership while providing a solution uniquely suited to local conditions and backed by Bell as the OEM," he concludes.

