

Leading Edge, supported by the Society for Engineering in Agriculture and the Australian Centre for Precision Agriculture, provides a local and worldwide window on engineering and PA research.

Cushion hitch speeds up Downs pick

By Gary Alcorn

Adam McVeigh of Corinda Cotton near Macalister on the Darling Downs is rating the new Oztec Manufacturing 68 cubic metre vertical lift boll buggy a 'dream to pull flat out'.

He says the mix of farm innovation and computer-aided engineering design has produced a unit which is both cost efficient and practical.

A cushion hitch developed several years ago by Greg McVeigh uses spring tension to absorb towing loads.

"This design is now used by a few manufacturers and we had our version incorporated in the Oztec model," he said.

As Oztec partner and agricultural engineer John Sheehan explains, "The 2.1 metre long pull is mounted on a horizontal pivot where it attaches to the chassis of the boll buggy. At the midpoint of the pull, a heavy duty compression spring absorbs the vertical reaction force between the pull and the tractor drawbar."

It is important to match the buggy's weight distribution with the size and location on the compression spring to achieve the best towing characteristics. The spring mounting frame also incorporates guides and wear pads that resist the side-loads that occur when turning.

"Since the buggy has wheels at three metre centres, we have made the cushion hitch and pull as a bolt-on unit. It can be mounted either centrally on the chassis, which suits tractors with three metre wheel centres, or it can be offset 500 mm to suit tractors with two metre wheel centres," he said.

This hitch when combined with several other sound engineering features enables drivers to tow the buggy 'flat out' at speeds up to 42kph. The main advantages are the smooth ride and reduced shock loads which supports operators when they are doing 10 hour days, Adam said.

Other features making this year's pick

more hassle free are the hydraulically adjustable tilt which reduces spillage, customised unloading design to suit the six row John Deere picker and the hydraulic comb which ensures tight filling of bin corners. A walking beam axle configuration also complements stability-promoting fitting of large aircraft tyres.

"I appreciate the safety aspects of the fail-safe switches on the floor chains," he said.

Another plus is the ability to drive the fully loaded buggy into a conventional storage shed to avoid risk of rain damage.

"You don't need a high clearance shed as with other buggies and the vertical lift operation makes this model feel balanced and safe," Adam said.

The Oztec Manufacturing boll buggy measures 7.2 metres by 4.5 metres by 2.5 metres and weighs seven tonnes empty. The buggy side wall folds in to reduce overall width to 3.5 metres for transport.



The cushion hitch makes for a smooth ride and reduced shock load.



The Oztec vertical lift boll buggy.