

Development and testing of folding type Cage Wheels for four wheel tractor

In Sri Lanka most popular Traction aid is Cage wheel. But the present available cage wheels called "Mud wheels" for four wheel tractor have smaller outer diameter than the tire to facilitate road transportation. Therefore when operating in the field tires touch the hard pan first and high slips take place. Because of this high travel reduction is occurred and wasted additional time, fuel and labour. It is a considerable economic losses for Farmers and tractor owners.

The present available cage wheel should be further improved for better performance. A folding type folding type cage wheel for four wheels Tractors were designed and developed to provide facility for road transportation and to improve performance in Wet land operations. A pair of Cage wheels was constructed after testing first wheel and implementing necessary modifications. The developed wheel had four folders by which the outer diameters achieved were 100 mm greater than the tire when expanded and 100 mm smaller when retracted.

The experiments were conducted in two locations (On station Trial under controlled field condition and farmer trial under practical field conditions) to compare the performance of above designed cage wheels with conventional cage wheels. Effective field capacity, time per hectare, Travelling speed, travel reduction and wheel cost were considered as criteria for the evaluation of Cage wheels. By considering all test results, it can be clearly observed that the performance of designed cage wheel was significantly higher in both locations.