

A Wide Span tractor designed for CTF solution for vegetables and other crops

Hans Henrik Pedersen

Aarhus University DK, HansH.Pedersen@agrsci.dk



Hans Henrik Pedersen has worked with extension and development of innovative farming technologies for 20 years. He is a partner in the group CTF Europe. He is presently enrolled as a PhD student at Aarhus University, Denmark, where he is studying and developing Wide Span Controlled Traffic Systems for the vegetable industry.

ABSTRACT: Solving the harvest challenge for CTF vegetable farmers may be the driver for a new generation of Wide Span tractors.

Matching tractors and harvesters with wide track widths (e.g. 3 m) is a technical challenge where the carrying capacity of tractors is often compromised, and transport of wide tractors on roads is a challenge for CTF adoption in several countries.

A wide span tractor can be several metres wide, thereby leaving a minimal footprint in the field. It can also be designed to carry the weight required. When in transport position, it can be narrow and long to avoid disturbing the traffic.

Concepts designed by farmers

As part of my PhD project, I have interviewed 28 innovative farmers and farm managers in Europe and Australia about their priorities for the design of a new tractor concept based on the wide span. The majority of those interviewed had a CTF system in place, or were planning to do CTF in the future.

Their answers were influenced by their main agricultural production. The majority of those interviewed were producers of vegetables. Although there was a lot of variability in the answers, the preference was for a robust tool carrier with a width ranging from 6 - 9 m for high bulk crops like carrots and potatoes. Producers of crops with lower weight requirements (e.g. lettuce or cabbage) preferred a wider carrier (e.g. 12 m). Harvest of crops was an important task to solve with the wide span carrier, as there is a lack of CTF compatible harvest machines.

For arable farmers with grains as the main crop, a lighter machine with a 12 m span width seems to be the optimal design.

A wide span prototype designed for vegetable harvest

My project is partly funded by the Danish Business Innovation Fund. In the project, a 9.6 m prototype of a wide span carrier has been developed. 9.6 m enables the machine to span 3 beds on the CTF farm where the machine will be tested. The farmer, Jens Kjeldahl, who is also a leader of the development project, has grown vegetables in 3 m wide SCTF beds for 5 years. In the project, all operations during growing of onions will be demonstrated in beds that are 9 m wide. At harvest, the onions will be carried on the machine for unloading at the end of the field. Manufacturer of vegetable harvesters, ASA-Lift, has designed and built the wide span tractor.



A 9.6 m Wide Span prototype tractor developed by ASA-Lift. It will be tested in all operations of onion production.