

System with permanent traffic lanes practised in a 10-ha field

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A field trial on a land of size 10 ha was established in spring 2010. The system with permanent driving tracks at the module of machines working width 6 metres is applied on the plot for 5 years (Fig. 1., Fig. 2.).

GPS satellite system with the correction signal of RTK VRS was used for the navigation of machines during soil tillage, sowing, application of chemicals for plant protection, application of mineral fertilizers and during harvest. Assisted steering system AgGPS EZ-STEER Trimble has been used for machines steering (since 2012 upgrading to EZ-PILOT and Autopilot Trimble).

Table 1. documents field operations and machines used for work operations.

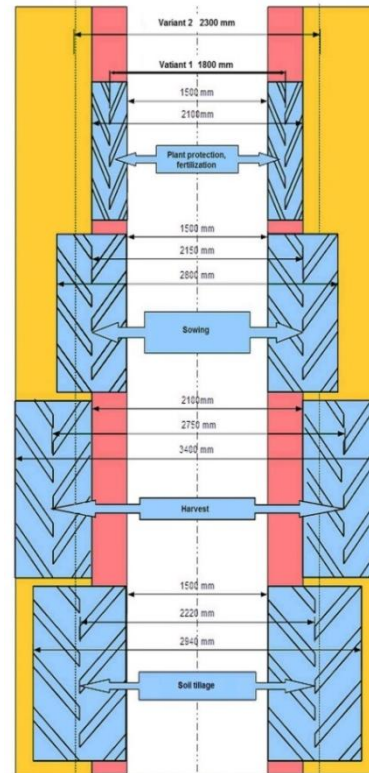


Figure 1. Wheel ruts of tractors and combine harvester after their concentration to permanent traffic lanes

■ - Area with intense wheel ruts ■ - Area with a low number of wheel ruts □ - Area with zero wheel ruts

Table 1. Field operations and machines

Field operation	Machines	Working width [m]	Distance of tracks [mm]	Tyre width [mm]
Shallow loosening	CASE 335 + FARMET Hurikan 600	6	2220	720x2
Medium deep loosening	CASE 335 + Simba SLD 600	6	2220	720x2
Sowing	NEW HOLLAND 7060 + VÄDERSTAD Rapid 600P	6	2150	500x2
Mineral fertilizers application	ZETOR 10145 + AMAZONE 1000	18	1800	300x2
Pesticide application	CASE JX 1100U + AGRIO NAPA 18	18	1800	320x2
Harvest	CLAAS Lexion 460	6	2750	650x2

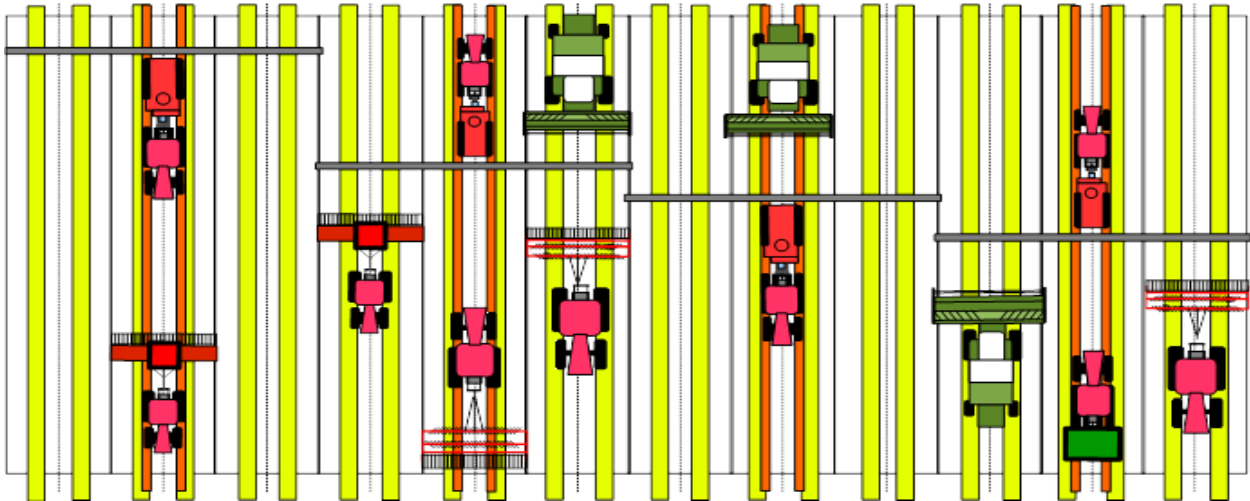


Figure 2. Organized way of controlled traffic on the field in the system OutTrac

The area without wheel tracks accounted for 68% of the area of this land when the working width module of 6 m was used on an experimental land.

An important result is that the system with permanent traffic lanes made it possible to increase the soil capacity of taking up water under intensive rainfall – in comparison to a part of the land with random passes.

The soil loss by wash during water surface runoff was also lower with controlled traffic compared to the variant with random passes. Therefore it is to assume that suitable application of the CTF system may be a contribution to soil protection against water erosion.

Based on the results of the field trial it was designed the system with optimum rides of machine sets on the fields in the agricultural enterprise. Figure 3 shows in detail the drive and turning on headlands.

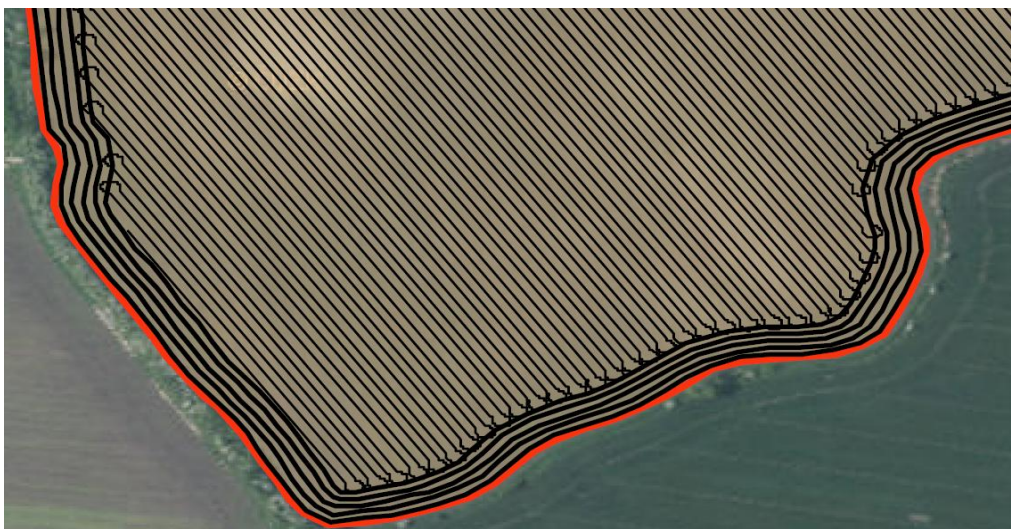


Figure 3. Detail of rides and turning on the headlands on irregularly field (module working width of 6 m) - in cooperation with Leading Farmers