

SAFETY MANAGEMENT REGARDING AGRICULTURAL MACHINERY

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Abstract. *Machinery accidents remain common in agriculture, and in Finland the share of machinery accidents of all farm work accidents has risen in the last years. All Finnish farmers are covered by mandatory accident insurance (Finnish acronym: Mata insurance), administered by the Finnish Farmers' Social Insurance Institution. In international perspective, the Mata register of documented accidents provides specified information about farm accidents which is not available in many countries. Our "Koneturva" ("machine safety") project 2014-2016 focuses on risk assessment and safe use of agricultural machinery. The project includes: 1) survey and analysis of the machinery accident cases over the years 2004-2014 from the Mata insurance, totally 11 300 accidents. 2) assessment of the safety aspects of user's manuals (handbooks) of some machinery types found to be the most dangerous ones according to the Mata accident data, 3) collecting of experiences of machinery safety risks and usability by inquiries to farmers, the occupational safety authority, and representatives of machinery trade and manufacturers, 4) compiling the results of the project parts 1)-3) into a new machinery safety guidebook, intended for machinery manufacturers and users.*

The project aims to help machinery manufacturers integrate safety features and functions into machinery design as part of machine usability. It is known that farmers tend to by-pass safety features that they feel cumbersome rendering them ineffective and thus compromising safety. Well designed safety features are crucial especially for new agricultural machinery with high level of automation. Finally, we aim to describe machinery safety management principles, describe the overall risk level in machinery use, and provide guidance for machine manufacturers and users that can help them identify, assess and monitor risks related to agricultural machinery.

The project now has results of part 1), the survey of documented accidents. Examples of findings: The estimated cost of benefit payments for serious accidents is about 8 million Euros per year, and machinery cause the majority of serious accidents. On average, one machine accident causes 33 lost workdays and a compensation to the casualty from the insurance of 3800 euros. Farm machinery types causing the most accidents are tractors, trailers, combines, front loaders and other loaders, drills for fertilizer and seed, ploughs, harrows, balers and choppers. The clearly most common situation where accidents occur is not during actual operation of the machines, but during service and repair of the machines – a third of all machinery accidents. Of these, a common accident type is persons being crushed under falling machines and machine parts during repair work. 33% of the farmers are women, but only 8.6% of the machinery accidents have occurred to women. This is probably mainly because women work less with machines than men.

Key words: *Agriculture, machinery safety, machinery accidents, safety management.*