



Multi-ley harvester for clean silage and less soil compaction



Inge Karlsson, Hult farm

1 Description of the innovation



One machine for cutting, tedding, conditioning and windrowing with less loss of material and use of energy

The machine is 10 m wide and designed for preparation and harvesting of ley and whole-crop silage. The functions are cutting, tedding, conditioning and windrowing. The machine is intended for broad-spreading, but can also make swathes. A big baler can be attached, allowing whole-crop harvesting in one pass. The machine is a combination of front-mounted and rear-mounted, in two sections. Clean roughage is achieved by a cutting bar that closely follows the ground, gentle pick-up and merging conveyor belt.



The machine has several advantages. It gives clean roughage thanks to not having to drive through the crop at any time. It aids in controlled traffic farming (CTF) and gives more long-lasting leys with larger yield and more even distribution of legumes. The machine is energy-saving and time-saving by avoiding the need for switching machines. Two jobs can be performed at the same time with the multi-function machine. The drying process is more easily controlled, as both tedding and windrowing are done by the same machine.



Better silage and better economy

Improving silage by constructing a machine not found on the market

The idea was to make several improvements in silage production that were not possible with existing machines. Inge could not find such a machine and undertook the task of making one. Several construction issues had to be considered. A double-knife system, which would require less energy, had to be replaced by a disc mower that could be used at higher speeds. A conveyor screw was replaced by a conveyor belt to give drier material. The project received grants from EIP-Agri promoting innovations. Inge is now working with the RISE institute on a full-scale machine for the coming season. The next step will be production, preferably in Sweden.

2 Farm description

ENVIRONMENT

Sandy soils to loam.

Temperate continental climate.

Altitude: 75 m a.s.l.

Slope: 0 %.

The farm is situated in Västergötland, south-west Sweden.

GRASSLAND MANAGEMENT

Grazing: Yes.

Temporary grassland based on red clover, white clover, perennial ryegrass, timothy and tall fescue.

Contracts in big baling.

STRUCTURE

1 AWU, works on machine development 20% of the time.

Organic production.

50 ha arable land area with 50 ha temporary grassland area.

30 ha semi-natural grassland area.

ANIMAL PERFORMANCE

30 suckler cows (Charolais, Simmental and Angus).

WHY IS IT WORKING?

The most important consideration for Inge when constructing this machine was that it should do its job and deliver the desired results. The starting point was conditions on his own farm. The goal was to find simple, smart solutions and use the resources on the farm. This guarantees a well-functioning machine.

The multi-purpose harvesting machine is designed for use on large and small farms. The semi-mounted machine gives smooth operation also on all shapes and sizes of fields. It follows the ground thanks to a height adjustment device close to the cutter bar. The technique gives fast wilting and less soil contaminated plant material. Thanks to the possible CTF there is a good prognosis for long-lasting leys with high yields and legume proportion.