SISTEM SISTEM TEHNIC INOVATIV PENTRU RECOLTAREA TULPINILOR DE CÂNEPĂ / *INNOVATIVE TECHNICAL SYSTEM FOR HARVESTING HEMP STALK*

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SUMMARY:

Recent studies have increasingly shown the benefits of using textile from natural fibres, one of them being the fibre derived from industrial hemp (Cannabis sativa L.). For relaunching the hemp crop for fibre, research was carried out for the implementation of a technology for harvesting hemp for stalks applied with an innovative technical system for harvesting hemp stalks with the following parts: stalk cutting device, sheaf binder, loading system and unloading system.

INTRODUCTION:

Hemp cultivation has been a traditional practice in Romania, the hemp being one of the oldest technical plants grown in this region.

Technical Hemp (Cannabis Sativa) - is the technical plant with the highest use of all technical plants in the industry, because nothing is thrown away from this plant. Hemp is part of the group of textile plants of great value for human and industrial use. Hemp production for industrial purposes continues to grow worldwide and is currently used for many applications: in constructions (emerging material in the green construction sector, including house insulation), paper manufacturing, animal bedding, fabrics, rope making and also as biofuel.

In Romania, there are favourable conditions for hemp cultivation on most of the territory, and the cultivated areas have increased in recent years; yet, mostly the hemp for seeds has been developed and less for the fibres.

The paper presents a "Technology for Hemp Harvesting for Stalks" (Fig.1) and an "Innovative Technical System for Harvesting Hemp Stalks, SRC-0" (Fig.2).

RESULTS:

The innovative technical system for harvesting hemp stalks will work in aggregate with an agricultural tractor of min. 45 HP and consists mainly of the following assemblies: cutting device, sheaf binder, loading system, unloading system, installation for monitoring the work process and warning the operator in case of equipment malfunctions.

Main characteristics:

- Power required to operate the cutting-binding device: 10 HP / 7.5kW
- Working width of the cutting device, 1400 mm
- Overall dimensions: length: approx. 4130 mm / width: approx. 2660 mm
- Loading System tilt angle, approx. 30°
- Unloading System tilt angle, approx. 5°
- Loading conveyor operation: hydraulic
- Cutting-binding device operation: hydraulic
- Unloading conveyor operation: mechanical
- Track Gauge: 1500 mm

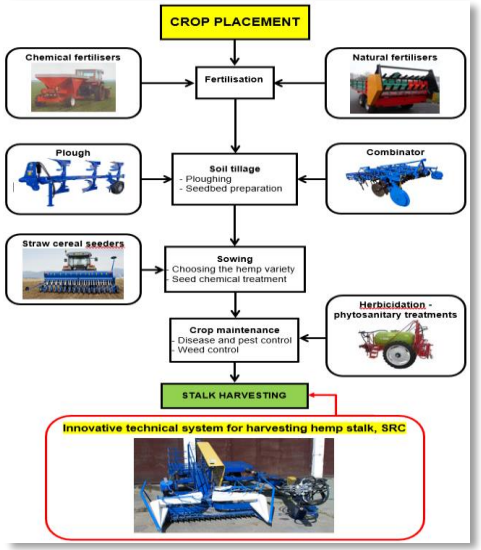

Fig.1 – Fiber Hemp Cultivation Technology

CONCLUSIONS:

- Hemp fibre culture, due to its benefits, is a potential for the relaunch of the natural fibres textile industry and also for crafts and hobbies, that can play a key role in the rural development strategy.
- The proposed innovative technical system for harvesting hemp stalks performs the following operations mechanically: stalk cutting, sheaf binding and placing in a row, helping to reduce losses, eliminating physical effort and increasing the quality of the harvesting work.

Fig.2 - Innovative Technical System for Harvesting Hemp Stalk, SRC-0

This work is financed by the Sectoral Plan for Research – Development in the agricultural and rural development sector, developed by the Ministry of Agriculture and Rural Development for 2019-2022: "*Agriculture and Rural Development – ADER 2022*", by the Financing Contract no.25.1.1 / 2019 for the project: "*ADER 25.1.1 – Mechanization Technology and Technical System for Hemp Crop Harvesting*".