



UNDER-SURFACE SEEDING: A COMPLETELY NEW SEEDING CONCEPT



Details of openers and frames



Details of opener working



Wheat growing after QUASAR seeding

Under-surface seeding is the latest seeding technique and assures numerous advantages:

- ♦ HIGHER HOURLY OUTPUT
- ♦ STABLE QUANTITY OF HARVESTED PRODUCT
- ♦ REDUCTION AND OPTIMIZATION OF FIELD OPERATIONS
- ♦ IMPROVED SOIL FERTILITY

Over the last few years, the fall in the prices of agricultural products has made it necessary for producers to reduce their production costs. In addition, the current method of cultivating land using increasingly powerful equipment and more technological methods has as its downside a steady decrease in the fertility of the soil.

In order to achieve better profit margins, the following objectives must be attained:

- ♦ **REDUCTION IN FIELD OPERATIONS**
- ♦ **CONSERVATION OF THE FERTILITY OF THE SOIL**
- ♦ **LOW DISTURBANCE - NO TILLAGE**

The reduction in field operations, as a first step, requires a new way of treating residual material on the terrain. Using the under-surface seeding technique, the residual material is left undisturbed on the soil, and instead of hindering the seeding operation becomes an advantage. In effect, the residual material left on the surface protects the soil, reducing its exposure to crusting and erosion. In addition, this technique helps to conserve the water content in the soil by reducing evaporation.

Under-surface seeding is an efficient and effective way of implementing a well-known concept:

THE SEED MUST BE FULLY INSERTED INTO THE SOIL, AND SHOULD NOT COME INTO CONTACT WITH RESIDUAL MATERIAL WHICH MIGHT HINDER ROOT DEVELOPMENT AND AFFECT THE GROWTH OF A HEALTHY AND VIGOROUS PLANT.

In addition, under-surface seeding allows the producer to reduce and even totally eliminate all the operations required before seeding in the traditional way.

The results can be seen immediately !!!

1. SAVINGS IN TIME
2. SAVINGS IN ENERGY
3. SAVINGS IN WATER FOR IRRIGATION
4. REDUCTION IN PRODUCTION COSTS
5. REDUCE THE GREENHOUSE EFFECT RELATED TO AGRICULTURAL ACTIVITIES
6. PREVENT LOSSES OF C SOIL CONTENT AND EXTRA CO₂ EMISSION TO ATMOSPHERE FROM THE SOIL

PRECISION AND EFFICIENCY: THE COLLOVATI OPENER® REALLY MAKES THE DIFFERENCE

THE DETAILS:

1. THIS DEVICE OPENS THE FURROW, LEAVING THE RESIDUE ON THE SURFACE, AND RE-CLOSES THE FURROW WITHOUT THE USE OF ADDITIONAL SEED COVERING DEVICES. THE OPENER CAN BE USED IN ANY CONDITIONS AND WITH ANY TYPE OF TERRAIN.
2. THE OPENER CREATES VERTICAL FURROWS IN THE SOIL
THE RESULT: EASIER SEED GROWING
3. DOES NOT COMPACT THE SOIL
4. LOW DISTURBANCE - NO TILLAGE
5. HIGH PENETRATION CAPACITY EVEN IN COMPACTED SOILS
6. MECHANICAL WEED CONTROL
7. EXCELLENT SEED-SOIL CONTACT
8. HIGH RATE OF GERMINATION
9. GOOD SEPARATION OF SEED AND FERTILIZER
10. SEEDING IN ROWS OR FULL FIELD
11. LOW POWER REQUIREMENT
12. SIMPLE MAINTENANCE



(2) Soya growing



(1) Furrow (manually opened)



(1) Furrow detail



COLLOVATI OPENER® details



Low disturbance

HARVESTING MANAGEMENT



Cereal harvesting - chaff spreader and straw cutter.



Corn harvesting with built-in stalk-chopper.

Correct use of residual material is essential for any type of seeding:

- ♦ A correctly-adjusted chaff-spreader and stalk chopper will assure uniform distribution of the residual material over the soil.
- ♦ Suitable tires and minimum passage over the soil (where possible discharging residue into ditches) thus avoiding unnecessary compacting of the soil.

RESIDUES MANAGEMENT



Straw Harrow on devitalized inter-row strip.



Soya growing in the same field

The passage of the Straw Harrow considerably reduces the time required for decomposition of the residue:

- ♦ chopping of residue;
- ♦ contact of residue with soil;
- ♦ high operating speed and extra working width for rapid completion of large areas.

WEED CONTROL



Under-surface cultivator.



Soil after passage with under-surface cultivator.

When it is necessary to work at a greater depth (for example, in the ruts left by the tractor or harvester), or when mechanical weeding is performed, it may be useful to work the soil with an under-surface cultivator. This brings the following advantages:

- ♦ residue remains on the surface, above the seeding level.
- ♦ reduced soil packing and no tilling leaves the structure of the soil intact.
- ♦ loose soil texture, ready for sowing.

UNDER SURFACE SEEDING



Under-surface seeder.



Growing of autumn-winter cereal.

This method of cultivation effectively eliminates all those operations that have no influence on the fertility of the soil and the development of the plants. In particular, all operations whose only aim is to allow operation of seeding machines are eliminated. Our low-disturbance seeding machine has been designed to conserve the natural fertility of the soil. It may be used directly after harvesting or on prepared terrain.

INNOVATION LIES IN THE DETAILS: WHEN SIMPLICITY MAKES THE DIFFERENCE

- 1 DUAL COMPARTMENT HOPPER** for the simultaneous distribution of seeds and fertilizer, fitted to the rear frame to reduce the load on the working parts. (A)

Detail of pneumatic control system. (B)



- 2 MECHANICAL TRANSMISSION, volumetric meters.** (A)

CONTINUOUS VARIABLE SPEED VARIATOR (B)



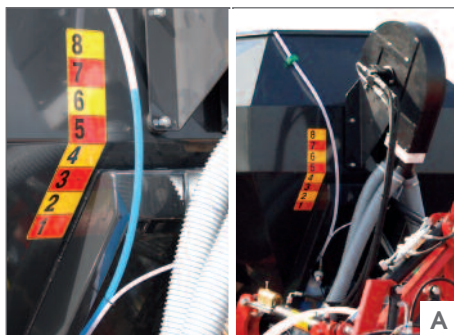
- 3 ELECTRONIC MONITOR** for control of seed output, working speed, fan control. (A)

ELECTRONIC MONITOR for control of seed flow, working speed, fan control, **VARIABLE DOSING QUANTITIES.** (B)



- 4 HYDRAULIC FAN** and liquid display. (A)

HYDROPNEUMATIC SUSPENSION for transport. (B)



- 5 INDEPENDENT FRAME SECTION** allows to follow the land and distribute frame stress evenly for better durability. (A)

HYDRAULIC CYLINDERS for uniform distribution of weight over the entire working width. (B)



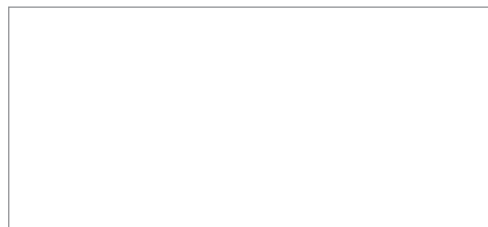
LOW-DISTURBANCE AIR SEEDER – QUASAR SERIES

00012688

TECHNICAL SPECIFICATIONS	LD 3000 - AS	LD 4500 - AS	LD 6000 - AS
Working width (ft/m)	9' 10" (3,00)	14' 9" (4,50)	19' 8" (6,00)
Transport width (ft/m)	9' 10" (3,00)	9' 10" (3,00)	9' 10" (3,00)
Length (ft/m)	18' (5,50)	21' 4" (6,50)	21' 4" (6,50)
Seed hopper capacity (gal/l)	450 (1700)	581 (2200)	792 (3000)
Opener type	Collovati Opener®	Collovati Opener®	Collovati Opener®
Number of openers	10	15	20
Number of independent frames	2	3	4
Tire size	n.2 (26.00X12X12)	n.2 (600X22)	n.2 (710X22)
Power Requirement (kW/HP)	65 (90)	95 (130)	125 (170)
Metering units	1-2	1-2	1-2
Spacing of openers	fixed	fixed	fixed



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Patent pending

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