

HARVESTING MANAGEMENT



Cereal harvesting - chaff spreader and straw cutter.



Corn harvesting with built-in stalk chopper.

Correct management of crop residues is essential for any type of seeding:

- ◆ A correctly-adjusted chaff - spreader and stalk chopper will assure uniform distribution of the crop residues over the soil.
- ◆ Avoiding unnecessary traffic and the use of large tires on the drive wheels reduce soil compaction.

RESIDUES MANAGEMENT



Straw Harrow on devitalized cover crop.



Soybean growing in the same field.

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

- ◆ chopping of residue;
- ◆ higher contact of residue with soil;
- ◆ high operating speed and extra;
- ◆ working width ensure fast completion of large areas.

WEED CONTROL



Sub-surface cultivator.



Soil after passage with sub-surface cultivator.

When it is necessary to till deeper (for example to reduce soil compaction due to harvesting in wet conditions), or when mechanical weeding is performed, it may be useful to till the soil with a sub-surface cultivator. This gives the following advantages:

- ◆ crop residues remains on the soil surface, above the seeding level;
- ◆ reduced soil compaction and improved soil tilth.

UNDER SURFACE SEEDING



Sub-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 lowdisturbance seeding machine has been designed to conserve the natural fertility of the soil. It may be used directly after harvesting or on tilled soil.

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)
Weight (lbs/kg)	5.070/2.300	7.716/3.500	9.479/4.300
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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TONUTTI reserves the right to make changes or add improvements at any time without notice. The information contained herein is general in nature and is not intended for specific application purposes.

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SINCE 1864
Always one step ahead®



Patent pending

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SIMPLE. RUGGED. EFFICIENT



Details of openers and frames



Details of opener working



Wheat growing after QUASAR seeding

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

- ◆ HIGHER HOURLY PROFIT
- ◆ HIGHER YIELD AND YIELD STABILITY
- ◆ THE BEST MANAGEMENT OF SOIL SURFACE CROP RESIDUES
- ◆ IMPROVED SOIL FERTILITY

Over the last few years fuel and fertilizer costs have eroded profit margins and made it necessary for farmers to reduce their production cost. In addition, the current method of cultivating land using increasingly weighty equipment and more chemicals has as its downside a steady decrease in the soil fertility.

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

◆ **REDUCTION IN FIELD OPERATIONS**

Using the sub-surface seeding technique residues are left undisturbed on the soil surface and do not hinder the seeding operation. Sub-surface seeding allows the producer to reduce and even totally eliminate all the operations required by conventional or minimum tillage sowings. Sub-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 CROP RESIDUES WHICH MIGHT HINDER ROOT DEVELOPMENT AND AFFECT THE GROWTH OF A HEALTHY AND VIGOROUS PLANT.

◆ **CONSERVATION OF THE SOIL FERTILITY**

Crop residues left on surface protects the soil reducing its exposure to crusting and erosion. In addition they help to conserve the soil water content by reducing evaporation. Sub-surface seeding does not need soil tillage: organic matter mineralization is reduced and biological activity is improved. Soil structure improves year by year.

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

THE DETAILS:

1. DESIGN AND PERFORMANCE BASED UPON PHYSICAL LAWS (DYNAMICS)
2. OPENS THE FURROW LEAVING RESIDUES ON THE TOP AND RE-CLOSES IT WITHOUT ANY ADDITIONAL SEED COVERING DEVICES
3. CAN BE USED IN ANY CONDITIONS AND TYPE OF SOILS
4. THE OPENER CREATES AN HORIZONTAL FURROWS IN THE SOIL WHICH RESULTS IN EASIER SEED EMERGENCE
5. DOESN'T NOT COMPACT/PACK THE SOIL
6. MINIMUM TILLAGE WITH LOW DISTURBANCE IN ONE-PASS
7. EXCELLENT SOIL-TO-SEED CONTACT
8. GOOD SEPARATION BETWEEN SEED & FERTILIZER
9. HIGH RATE OF GERMINATION
10. HIGH PENETRATION CAPACITY, EVEN IN COMPACTED SOILS
11. MECHANICAL WEED CONTROL
12. ROWS SEEDING (CORN, SOYBEAN, OIL & PROTEIN CROPS) OR "FULL FIELD" (CEREALS, RICE, PASTURE/FORAGE ...)
13. LOW POWER REQUIREMENT
14. EASY AND FAST MAINTENANCE



COLLOVATI OPENER® details



Low disturbance



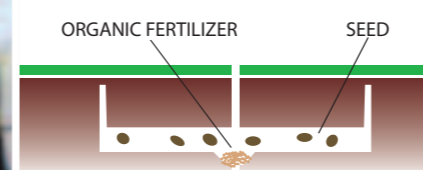
(2) Soya growing



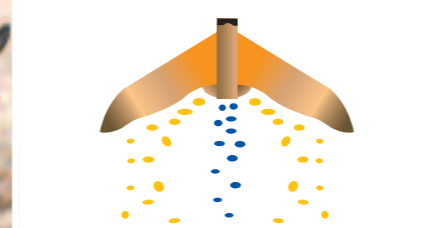
(1) Furrow (manually opened)



(1) Furrow detail



(9) Separation of seed and fertilizer



(10) Seeding in rows or full field

- 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)



A



B

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

CONTINUOUS VARIABLE SPEED VARIATOR (B)



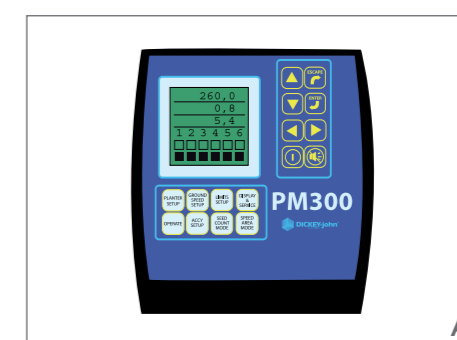
A



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)



A



B

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

HYDROPNEUMATIC SUSPENSION for transport. (B)



A



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)



A



B