DIRECT DRILLING REDUCES COSTS, IMPROVES SOIL TEXTURE AND PROTECTS THE ENVIRONMENT



In the last six decades he has replaced the ox with the tractor and this has increased environmental contamination. Successive cultivations compact the soils, destroy the fauna, pulverize the soil particles exposed to the rain, facilitate erosion and reduce organic matter by oxidising dead plant material thus increasing Co2 leakage to the atmosphere and hence global warming. Today the new agricultural revolution has arrived to slowly correct all the damages caused by man throughout the ages. We cannot understand that while space technology and



Minimum tillage interrupts both the seed cultivation by moving the top surface the capillarity and the capacity these have for loosening the soil (i.e. roots). (8-10 cm) (stubble) after the harvest and the free flow interaction of the roots of the recently combined crops with the rest of the soil. This therefore prevents



Good Routing

MINIMUM TILLAGE: Soil divided and difficult root penetration.

For more than 4000 years man has ploughed without having any real scientific reason for doing so. In this way he has damaged soils causing eolic and hydraulic erosion.

communications are so far advanced, farming continues as it did a thousand years ago or more. ARGENTINA is a country without farm subsidies and has had to develop direct drilling techniques to enable it to compete with those countries that do receive subsidies. Farmers with 10 uninterrupted years of direct drilling have been able to reduce cultivation costs by nearly 70% as well as improving soil structures, increasing yields and reducing nitrogen applications.

MINIMUM TILLAGE IS UNSUSTAINABLE IN THE LONG RUN

With the minimum tillage system it is necessary to plough in alternate years in order to de-compact the soil. This is the advantage of direct drilling.



DIRECT DRILLING: De-compacted soil and good root penetration.

THE AGRICULTURAL REVOLUTION OF THE NEW MILENIUM



View our desing and you will be able to understand our messaje.

INSECTICIDE

require adjustments.

in the soil is increased.

The system, patented by BERTINI

This system, patented by Bertini, has a seeding train which cuts a micro-furrow and places the seed at the exact depth. It obtains ideal seed-to-soil contact and deposits the slug pellets at the same time. All this is achieved





Folding and transpor

The 22,000 model has a simple folding echanism. This enables a single operator, using the hydraulic command to either prepare the machine for work or to fold it for transport. In work mode he weight of the machine is on top of he opening turbo knives, enabling them be more effective, whereas in the transport mode the weight is evenly distributed for ease of movement

The Bertini Direct Drill

System The Bertini Direct Drill system offers a great reduction in costs; high drilling velocity, low HP requirements - great precision in seed distribution - perfect depth control and consequent high germination. The technique consists of not moving the soil. A cutting disc (turbo) penetrates 8-10cm preparing a macro seed bed. The disc is accompanied by two cleaning skates that not only clean the disc but also push down the stubble thus creating a clean cut. A double disc deposits the seed in the newly created seed-bed. A seed firmer pushes the seed to the bottom of the line, creating excellent contact with the soil. Two orbital wheels next to the double disc control the seed depth. A set of indented inclined metal wheels close the seed line while a small insecticide box (i.e. slug pellets) administers a precise dosage into the seed line. With this simple and efficient operation we substitute all of the operations so far carried out on the

BERTINI has spent the last 20 years researching and developing direct drills and this largely contributes to their (E.U. Patents Applied for) success.

by a single machine in just one operation.



As a drill designed for fine seeds, pastures and big grains, it can drill both fine seeds such as wheat, oats, barley, triticale etc and big seeds such as maize, soya, sunflower and sorghum with precision. It can be used as a conventional drill, conservationalist drill or for best results as a direct drill. All of the hoppers have plastic rollers (distributors) of a consistent volume which are precise and nonwearing. They are run by gear boxes that maintain a fixed relation with the temperature and do not

Direct drilling protects the environment by capturing Co2, protecting the organic matter of the soils and stopping eolic erosion and erosion caused by and rain water.

Over the years the roots loosen the soil structure, especially on the A-B-C horizons, allowing a greater root penetration and water infiltration. When permenant coverage has been achieved, water retention

As a result of this landscapes are replaced by more natural environments where flora and micro-organisms combine with grain production.

This total technological package which includes hybrid seeds that are resistant to disease establishes itself in the **agricultural revolution of the 21st Century!**

Traditional System: 1 Ha / 3 Hrs BERTINI System: 3 Ha / 1Hr





CE

Direct drill with BERTINI

Avoid global warming... and reduce costs by up to 70%



BERTINI Leader in drilling

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DIRECT DRILL MODEL 22,000 FOR DIRECT DRILLINGTHE ONLY ONE IN THE WORLD.

By using the direct drilling technique we can achieve a better plant structure for wheat, a sunflowers and maize all using direct drill.

Depth control and seed distribution

MONOGRAIN PNEUMATIC SYSTEM

The monograin pneumatic Bertini system allows us to distribute sunflower, wheat, maize, soya, sorghum etc with total precision. This patented system works by flowing air against the seeds. It is easy to regulate, operate and is long lasting. Bertini is the only drill in the world that drills wheat seed in a monograin system and at new intervals of 20cm.



The Bertini seed train manages to make a seed bed, using a turbo knife that digs into and cuts away old crop residue. Two elastic skate boards alongside the turbo knife consolidate the furrow side walls. In the seed bed thus created, a narrow double disc with a set of attached double metal wheels places the seed at the correct depth. The metal wheels which have a mechanism for depth control, operate with precision. The metal wheels also have a scraper that keeps the double discs clean. This permits the drill to work even in the wettest and muddiest conditions

WHEAT IN A CONVENTIONAL FLUTED ROLL SYSTEM.

For sowing wheat, barley, triticale, oats etc, Bertini offers a plastic distributor for each row. Its 81 speed gearbox (with 3% difference between gears) offers a greater uniformity for sowing

A good sowing practice is for the seed to remain at the required depth, constant and with close soil to seed contact.



A plastic seed firmer consolidates the seed to soil contact. A pair of rear wheels, spring-loaded and positioned to form a V-shape with a variable angle of attack, consolidate the sidewalls thereby leaving the centre free for the plant shoot to emerge.

To summarise, the seed train performs three functions: Cuts and obtains a narrow seed furrow Opens the furrow and places the seed Consolidates and covers.



Traditional system 1HA (bectare) /3hrs Bertini system 3HA/1 hr









Model A has a sweeping double depth wheel, with a furrow width of 20 cm

Model B with the rear wheels positioned in a V-shape controls depth, producing a furrow depth of 15cm By taking away the depth wheels and their mechanism, we pass from Model A to Model B and vice versa.

> Bertini are inventors of the seed gearboxes in their three sizes, 81, 27 and 9 Steel bearings SAE 8620 chrome and nickel) empered and coated

A Depth control by lateral

Depth control



On this seed train, there are more than 8 patents that support all of the existing developments. The ball bearings of the moving parts are composed of 16 tiny balls, 8mm in diameter that make them long lasting and durable

- The straw skateboards are made of tempered steel, as are all of their component fittings.

- The depth control wheels are made from a single steel piece SAE1070. The same steel is used in the double discs. The Bertini depth control wheels have three characteristics that make them unique.

a) The narrow wheels create an even narrower indentation in the soil which increases the pressure on the stubble area whilst maintaining an even depth of seeding.

b) The wheels are metallic and therefore make it difficult for soil to adhere to the rim. If this did occur a metal scraper is attached that would keep it clean. Because of this the wheel always keeps its narrow outline, and can drill in very muddy conditions.

c) The wheels are slightly conical in shape and have perimetral edges that support the double discs. The pressure each wheel receives is released horizontally therefore slightly pressing against the disc. This stops any ingress of soil or straw on the interior of the wheels

The rear wheels are tempered and are made out of steel SAE1070.

Γ	Specifications for BERTINI Model 22,000, UK version									
	Drill widths (Mts.)	Quantity of Furrows at 20cm (Cms.)	Empty Weight (Kg.)	Quantity of Furrows at 15cm (Cms.)	Empty Weight (Kg.)	Transport Width (Mts.)	Power requirements (Hp.)	Seed Hopper Capacity (Lts.)	Fertilizer bopper capacity (Lts.)	Insecticide bopper capacity (Lts.)
	3	15	3,250	20	3,650	2,3	110	530	530	135
	4	20	4,300	26	4,780	2,5	130	820	820	180
	5.2	26	5,600	33	6,160	2,9	140	1,100	1,100	230
	7	35	7,550	45	8,350	4,2	160	1,230	1,230	310
	8.4	39	9,000	53	10,120	4,2	180	1,470	1,470	375

