



Versión en español: [www.imet.com.ar/sembradoras/Comparativo\\_ruedas\\_gemelas\\_dispositivo\\_IMET.pdf](http://www.imet.com.ar/sembradoras/Comparativo_ruedas_gemelas_dispositivo_IMET.pdf)

## Differences between the device to regulate the planting depth type of dual wheels and patented by IMET®

The twin-wheel type device (call it from now on: DRG), it was conceived in the decade of '60 in USA, to other agriculture, the so-called semi-direct: disturbed soil with some stubble on the surface. Since agriculture is the direct current (plant on the product of the last harvest) the disadvantages that occur are unique to a device that is not "thought" to this complex situation.

Please detail the benefits (☺) of IMET® and disadvantages (☹):

- 1) The DRG, have both wheels playing permanently to the double disc. The disks are steel with heat treatment and the wheels of rubber, as between the two there movement (draft differential (for not being concentric), there wear friction. Therefore, the material with less resistance to wear will have greater wear. Without a doubt, the wheels (rubber) suffer most. When the direct sowing is realized, very especially on stubble of wheat (it is very thin and thick), the stubble starts to "slipping past" in the space arisen by the wear between the wheel and the disc. Causing the stopped one of the wheel, which is translated in a dragging of the coverage existing (stubble) in the area, happening to turn into a device of "no direct" (it eliminates the conservationist agriculture established in this field). Also it is translated in an enormous loss of time, since the sowing must stop systematically for des to obstruct each of the wheels bulldozers. Though the wheels have a device capable of compensating the wear defined before and also there exists a (patent) development that diminishes the contact rubber-disc, **could not have solved the basic problem**. **The situation here silver is extremely serious**. In the development IMET®, the wheels are separated from the double disc, by no means have they taken contact with them, therefore wear does not exist and does not take place stopped and dragging of the coverage. **The comparative result is: ☺**.
- 2) The twin wheels are close together on the path generated and disposed in beam (angular, not linear) in IMET® device are separated a few inches and semi-rigid (torsion bar). In this regard, the copying of the ground to the transverse movement of the machine (only), is a bit more accurate with twin wheels, this is possible (not permanent). **The comparative result is: ☹**.
- 3) The twin wheels are arranged several inches behind (relative to the direction of travel) of the lower quadrant of the double-disc opens furrow tillage element carving the groove. The wheels on the IMET® device, the lower quadrant of the same match the lower quadrant of the double disc furrow open. Therefore, copying the way with the breakthrough is perfect. **The comparative result is: ☺**.
- 4) The twin wheels are "glued" to the double disc and how they are arranged in "V", the axis of each wheel is located at an angle with respect to ground, thus not properly support all of its bandwidth, causing premature wear and early replacement. In the IMET®, the

axis parallel to the ground is prepared, which is the expected wear and life span, long.  
**The comparative result is:** 🤔.

- 5) The twin wheels are adjacent to the furrow; they pass over an area far from the ground to be "faithful", but rather, a mixture of soil and stubble removed by these item cutting and removing front. So copying the terrain is very irregular and completely lost its original definition of "gauge wheels". The IMET<sup>®</sup> device, being an inch wheels detached from the groove, the tread at any time make contact with the ground altered by any of the items front of the body till planting. **The comparative result is:** 🤔.
- 6) The twin wheels being adjacent to the open furrow field pass removed by this item front tillage, "trampling and soil compaction". Whereupon, difficult or ends up spoiling the proper performance of the closing wheels Path (do not cover [pasture] or the median are not desired). The IMET<sup>®</sup> device, being an inch wheels detached from the groove, the tread at any time make contact with the soil removed, not in any way compromise the proper performance of the furrow closing wheels. **The comparative result is:** 🤔.
- 7) In direct sowing, be deposited on the bodies of tillage an important load (force) extra to achieve open ground, often very compacted. That force is transmitted directly to the wheels level and through them the land on which they work. The twin wheels being adjacent to the open furrow compact the ground in its entire lateral surface (there is what is called "groove trowel), leading to greater consumption of energy to the seed for root development. AAPRESID supplement extracted from 11/1993: *Tendency to knead and compress the walls of the furrow (Baker & Mai 1982), which induces the stress of embryonic roots by the barrier imposed by the walls of the groove with the rest of undisturbed soil. Tendency to form a tight wedge wall from where it is difficult to get loose soil to cover the seed (Dixon 1972).* There have been tests in which we noted a significant delay in the development of nodal roots in planting the device. The IMET<sup>®</sup> device, being an inch wheels detached from the groove, there is no alteration (compaction) on the surface of a furrow. Tests performed by an IMET<sup>®</sup> user: sowed with a machine with dual wheels and the IMET<sup>®</sup>, the same field with the same seed (soybean) and at the same time. After 10 days, all plants grown with the IMET<sup>®</sup>, had 3 days in height and planted it with the other planter. **The comparative result is:** 🤔.
- 8) It says on the DRG, the wheel being "glued" to the disk also plays an important role in cleaning the disc, especially when planted in clay or muddy terrain. If the problem is the presence of mud on the disk, right would be first to prevent sticking and then, in those circumstances, place a steel washer as successful for that purpose. *Trying to clean a heat treated steel disc with a piece of rubber, is like trying to clean up the Riachuelo River (Buenos Aires - Argentina) with filter paper.* **The comparative result is:** 🤔.
- 9) It says on the DRG, the wheels being "glued" to the disk, also fulfills the important role of "stepping" the stubble to facilitate / improve their court. Remember, this device was "intended" to semi-direct seeding, the double album was cut short stubble, including not exist (because it is not needed) front cutting blade. In direct sowing, the task of cutting the stubble, without doubt, must meet the front blade. *Work Offline (or poorly regulated) front blade is to guarantee strong headaches to the operator of the planter.* **The comparative result is:** 🤔🤔 (neutral).
- 10) The land removed from the double album and "what they can to extract" the wheels on the outside of each disc, making contact with the inside of each wheel (concavity that allows its housing), making its circular motion , a "release" of land projecting upward on

the seed meter located on the top. This leads to accumulation of land and the subsequent braking seed distributor. The IMET<sup>®</sup> device, this does not occur because both wheels are separated from the row level and has no concavity, making it impossible to land property.  
**The comparative result is:** ☺.

Any new design is accepted if the sum of benefits is greater than the disadvantages.

Final result of the comparison:

**IMET<sup>®</sup> 8 points in favor - 1 twin wheels plus.**

Invention developed and patented by Eng. Marcelo Francisco Bisciglia (AR043296B1):

<https://www.inpi.gov.ar/Recruitment%20%20Direcciones.asp> (Select "Patentes y Modelos de Utilidad", then "Búsqueda por parámetros" and in the box "Número Resolución", state: 43296. Select the button "Buscar". For more information, select "Ver más").

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