

Area under No- tillage in different countries

One has to be aware that only a few countries in the world conduct surveys on the extent of no-tillage adoption and that in most cases the data is based on estimates made by farmer organizations, agro industry and others. Table 1 shows the estimated area under no-tillage worldwide.

Country	Area under No- tillage in ha 2004/ 2005
USA ¹	25,304,000
Brazil ²	23,600,000
Argentina (*) ³	18,269,000
Canada ⁴	12,522,000
Australia ⁵	9,000,000
Paraguay ⁶	1,700,000
Indo-Gangetic-Plains(**) ⁷	1,900,000
Bolivia ⁸	550,000
South Africa ⁹	300,000
Spain ¹⁰	300,000
Venezuela ¹¹	300,000
Uruguay ¹²	263,000
France ¹³	150,000
Chile ¹⁴	120,000
Colombia ¹⁵	102,000
China ¹⁶	100,000
Others (Estimate)	1,000,000
Total	95,480,000

Source: 1) John Hassel CTIC, 2005; 2) FEBRAPDP, 2005; 3) AAPRESID, 2004; 4) Dr. Doug McKell, Soil Conserv. Council of Canada, 2004; 5) Bill Crabtree, WANTFA, 2005, 6) MAG – DEAG, Soil Conservation Program, 2005; 7) Dr. Peter Hobbs & Raj Gupta 2005; 8) Carlito Los, 2005, 9) Richard Fowler, 2003; 10) ECAF Homepage, 2005; 11) Rafael E. Perez, 2004; 12) Miguel Carballal AUSID, 2005; 13) ECAF Homepage, 2005; 14) Carlos Croveto, 2005; 15) Fabio Leiva, 2005; 16) Li Hongwen, 2005;

(*) Preliminary information based on 40% of data collection for 03/04

(**) Includes four countries in South Asia, India, Pakistan, Bangladesh and Nepal

Readers of this paper, who think that their countries should be mentioned in this list, or that some numbers should be corrected, are invited to contact the author giving credit of the sources of the information. Internationally accepted definitions of no-tillage should be respected.

According to previous sources there would be 650,000 ha of no-tillage in Mexico. But this estimate was based on the number of no-till machines sold which was multiplied by average farm size. Newer data by

CIMMYT showed that this system greatly overestimated the area under this practice.

While more than 90% of the area under no-tillage in Argentina, Brazil, Bolivia and Paraguay is permanently not being tilled, this is only the case in about 10 – 12% of the area in the USA (CTIC; 2005).

Despite the fact that the United States has the biggest area under no-tillage, it is interesting to note that in this country no-tillage accounts for only 22.6% of all cropland hectares (CTIC; 2005). In Brazil and Argentina no-tillage accounts for about 60% and in Paraguay for 65% of all cropland hectares. Paraguay is now the leading country in the world in terms of percentage of no tillage adoption.

It is estimated that at present no-tillage is practiced on more than 95 million hectares world wide. Approximately 47% of the technology is practiced in South America, 39% is practiced in the United States and Canada, 9% in Australia and about 3.9% in the rest of the world, including Europe, Africa and Asia. Despite good and long lasting research in this part of the world showing positive results for no-tillage, this technology has had only small rates of adoption.

Data presented at the ISCO Conference in Indianapolis in 1999 (Derpsch, 2001a), showed 45.5 million ha of no-tillage being adopted by farmers at that time. More recent data presented at the I World Congress on Conservation Agriculture in Madrid (Derpsch, 2001b,) showed 62 million ha of no-tillage being adopted worldwide. That means that the area under this technology has more than doubled since 1999 and has increased by 54% since 2001. Since the II World Congress on CA (Derpsch and Benites, 2003), no-tillage adoption has grown by 25 million ha.

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[Top](#)

The Knife Roller A new development for permanent cover cropping systems

Green Manure Cover Crops (GMCC's) and crop rotation are the key factors for the unprecedented growth of no-tillage especially in Brazil and Paraguay. Linked to the spread of cover crops is the use of a **Knife Roller** to flatten cover crops. This implement is not terribly expensive and in many cases can be made locally or by the farmer himself. The implement can be pulled by medium sized tractors or the smaller version by animal traction and has contributed a lot in reducing herbicide rates in the no-tillage system. The **Knife Roller** has become an essential tool for managing GMCC's in many countries of South America. The knives should not cut the plants but just smash the stems, in order to impede water circulation in the plant. It has been a big error of many manufacturers to make the implement with sharp knives. In this case knives penetrate into the soil enhancing weed germination

Dimensions of a Knife Roller:

The Knife Roller consists of a hollow steel cylinder, 6mm thick, approx. 115 - 200 cm wide and 60 -70 cm in diameter.

Ends are welded to be filled with water if needed.

Approx. 8 - 12 blunt knives are placed every 19 cm.

The knives are about 7 - 10 cm high and are placed parallel to the cylinder at an angle of 45° or 90°.

Weight of each 200 cm cylinder is approx. 400 kg empty and 800 kg full of water.

Three cylinders are often placed in such a way that two run in front and one in back allowing for greater working width.

Cylinders are mounted on a frame to allow hydraulic lifting.



The Knife Roller to flatten and kill green manure cover crops and leave the plant residues on the soil surface is an essential tool for cover crop management.

[Top](#)