No-Tillage worldwide

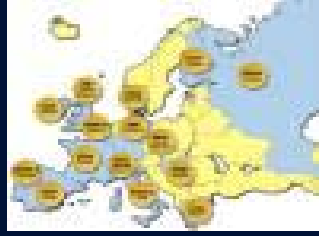
Gottlieb Basch

Conservation Tillage

What is it and what it is not?

	Tillage System	Crop Residue Management (CRM)
	Traditional/Conventional Tillage	?
	Reduced Tillage	> 15% - < 30%
Conservation Tillage	Strip Tillage	> 30% ou > 1120 kg/ha
	Ridge Tillage	
	Mulch Tillage	
	No-tillage	
	Minimum Tillage	? (- 40% fuel) (y. 2000)

(According Mitchell et al., 2009)



No-Tillage overseas

Extent of no-till adoption in the USA

25.3 Million ha

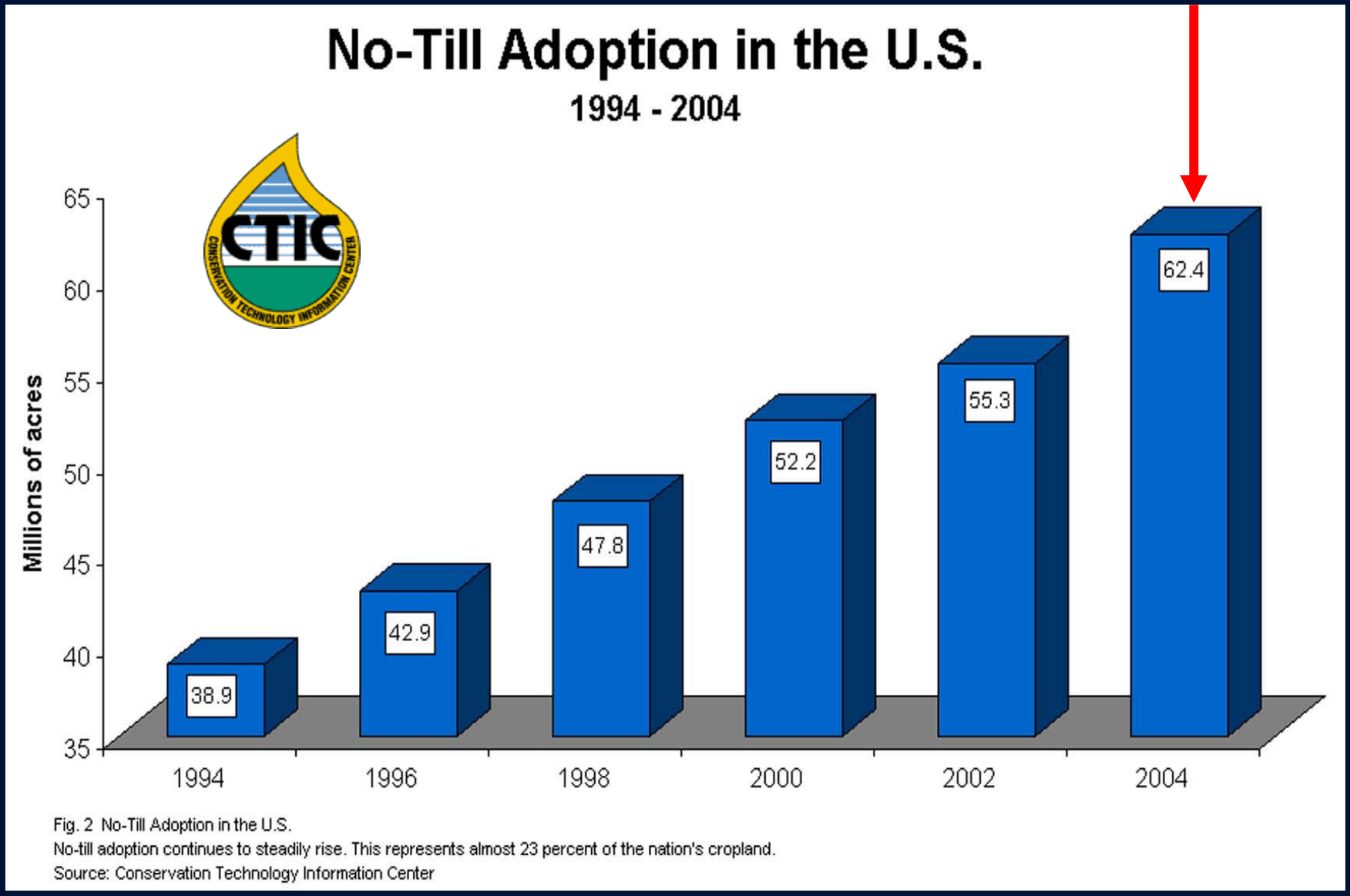
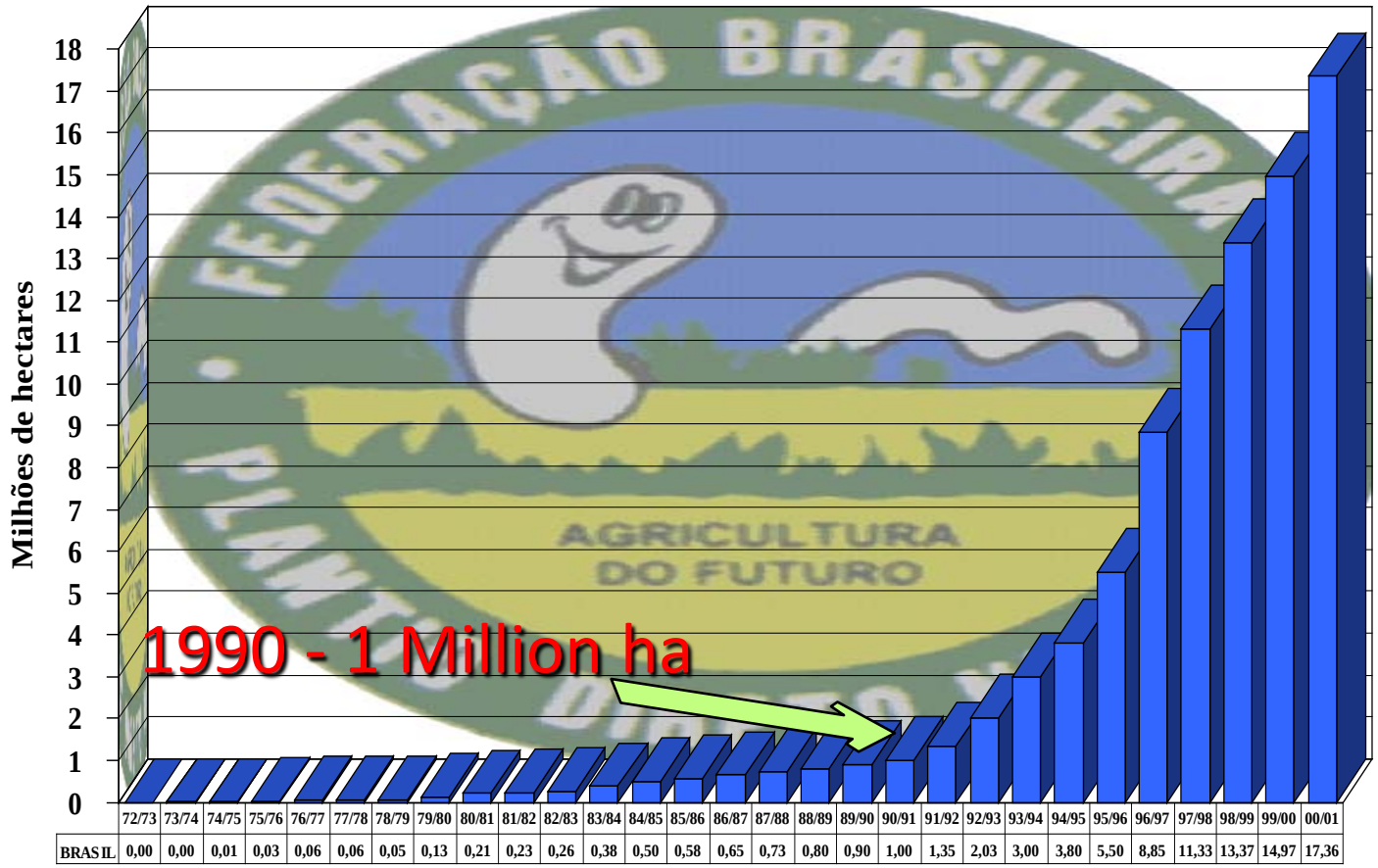


Fig. 2 No-Till Adoption in the U.S.
No-till adoption continues to steadily rise. This represents almost 23 percent of the nation's cropland.
Source: Conservation Technology Information Center

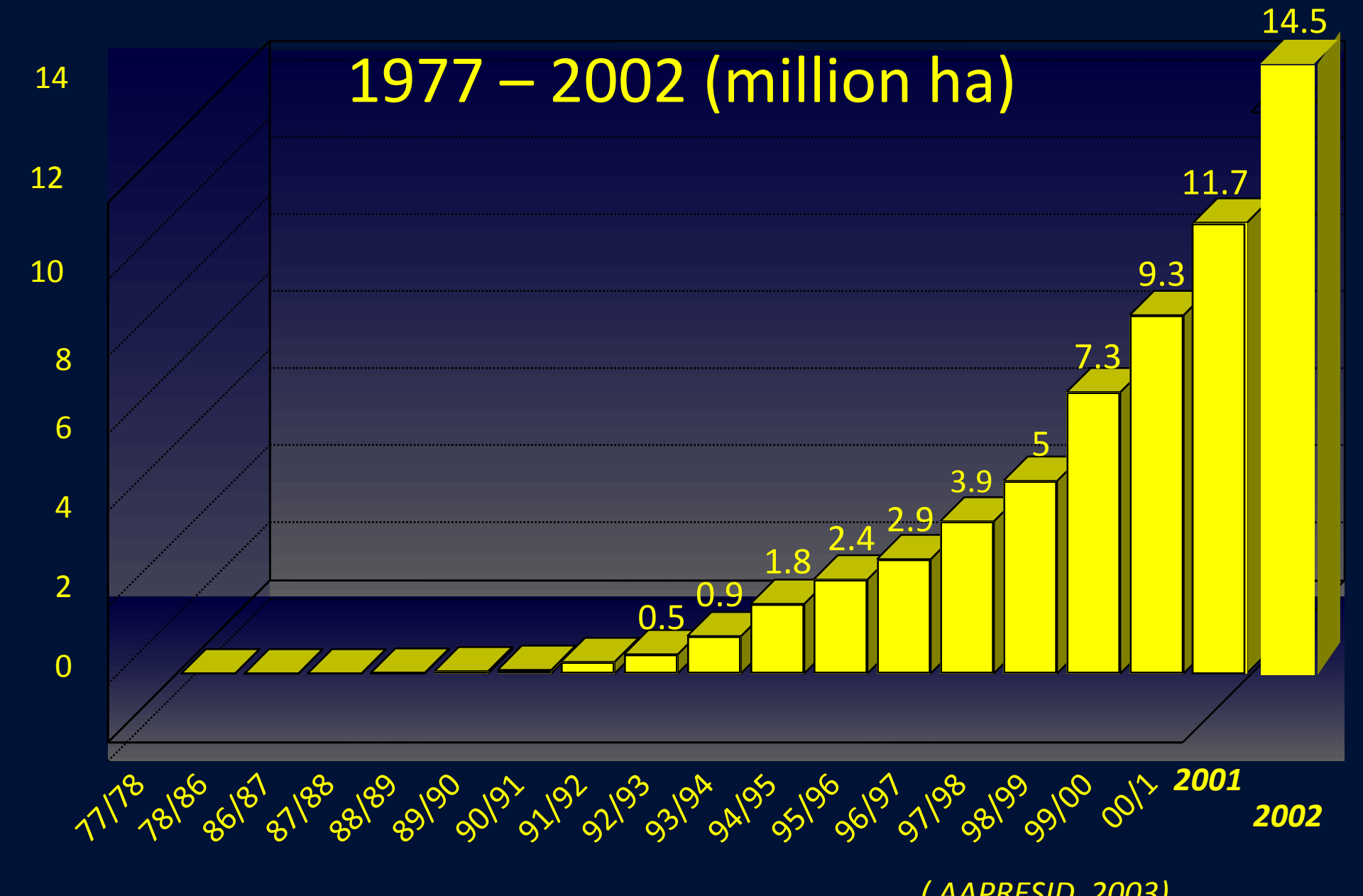
Extent of no-till adoption in Brazil



fonte: EMATER RS, EPAGRI-SC, EMATER-PR, CATI-SP, FUNDAÇÃO MS, APDC(CERRADO)

(FEBRAPDP,2002)

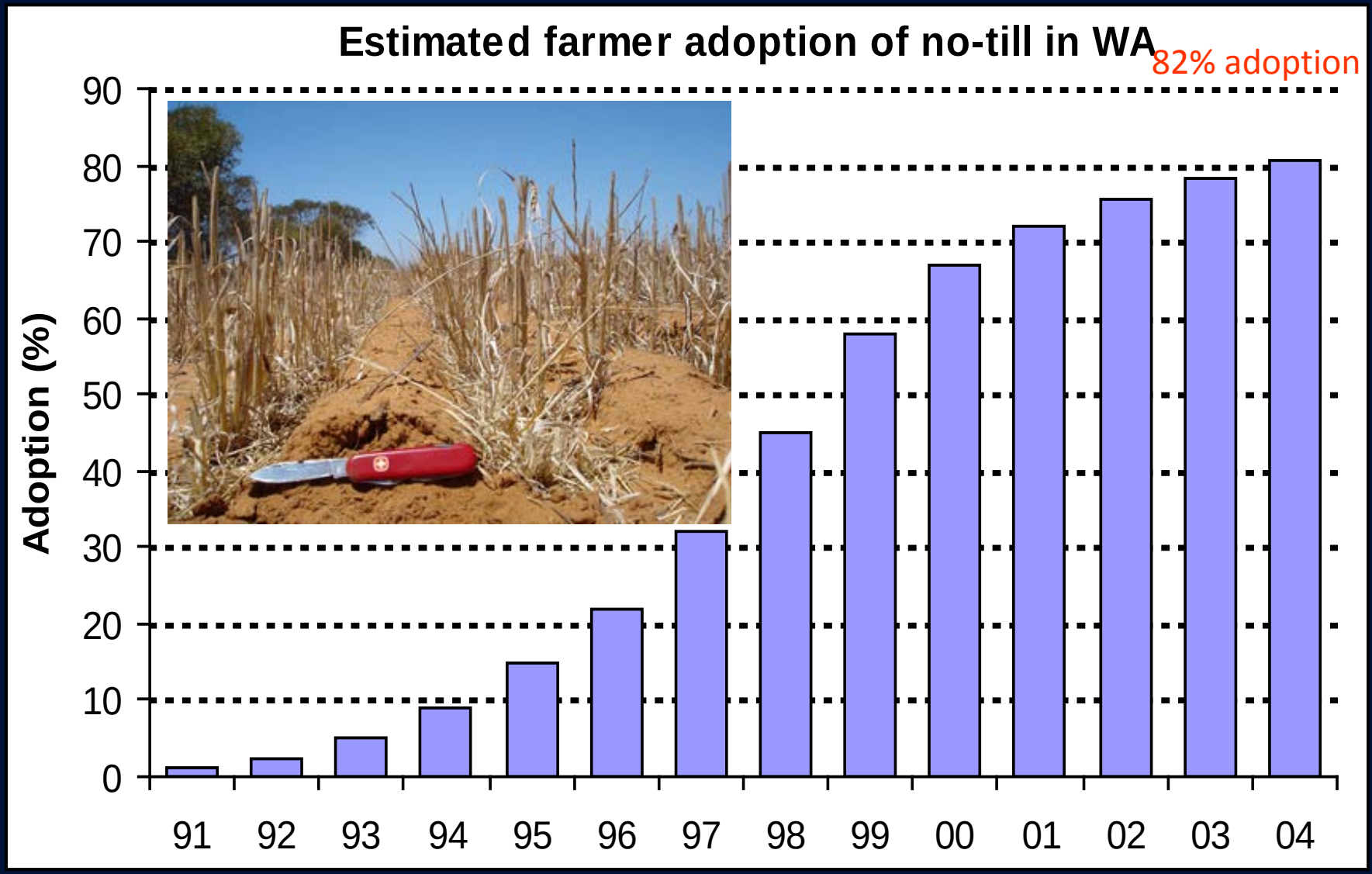
Extent of no-till adoption in Argentina



(AAPRESID, 2003)

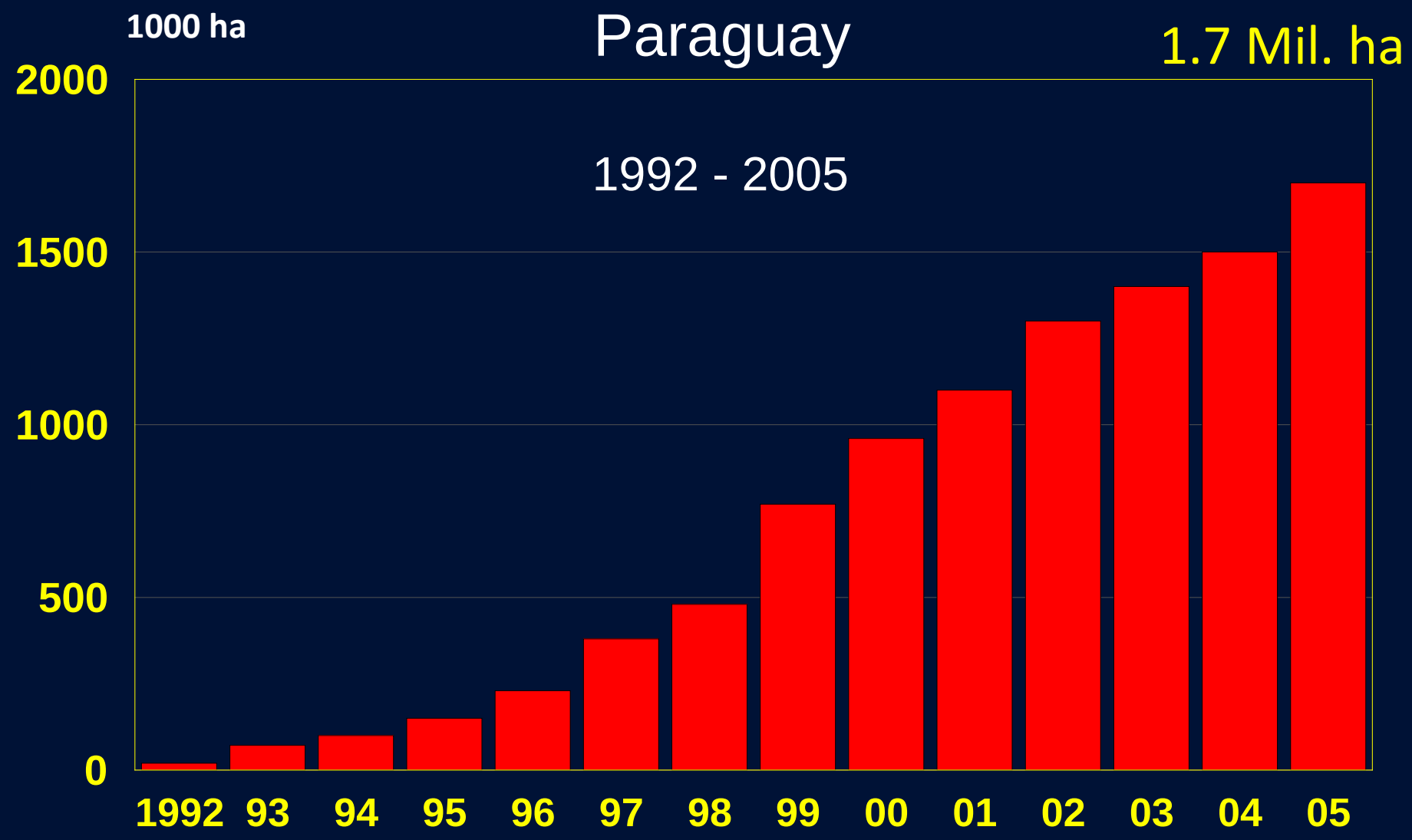
Adoption of no-tillage in W. Australia (%)

9 million ha under no-tillage in Australia



(Bill Crabtree, 2004)

Extent of no-till adoption in Paraguay

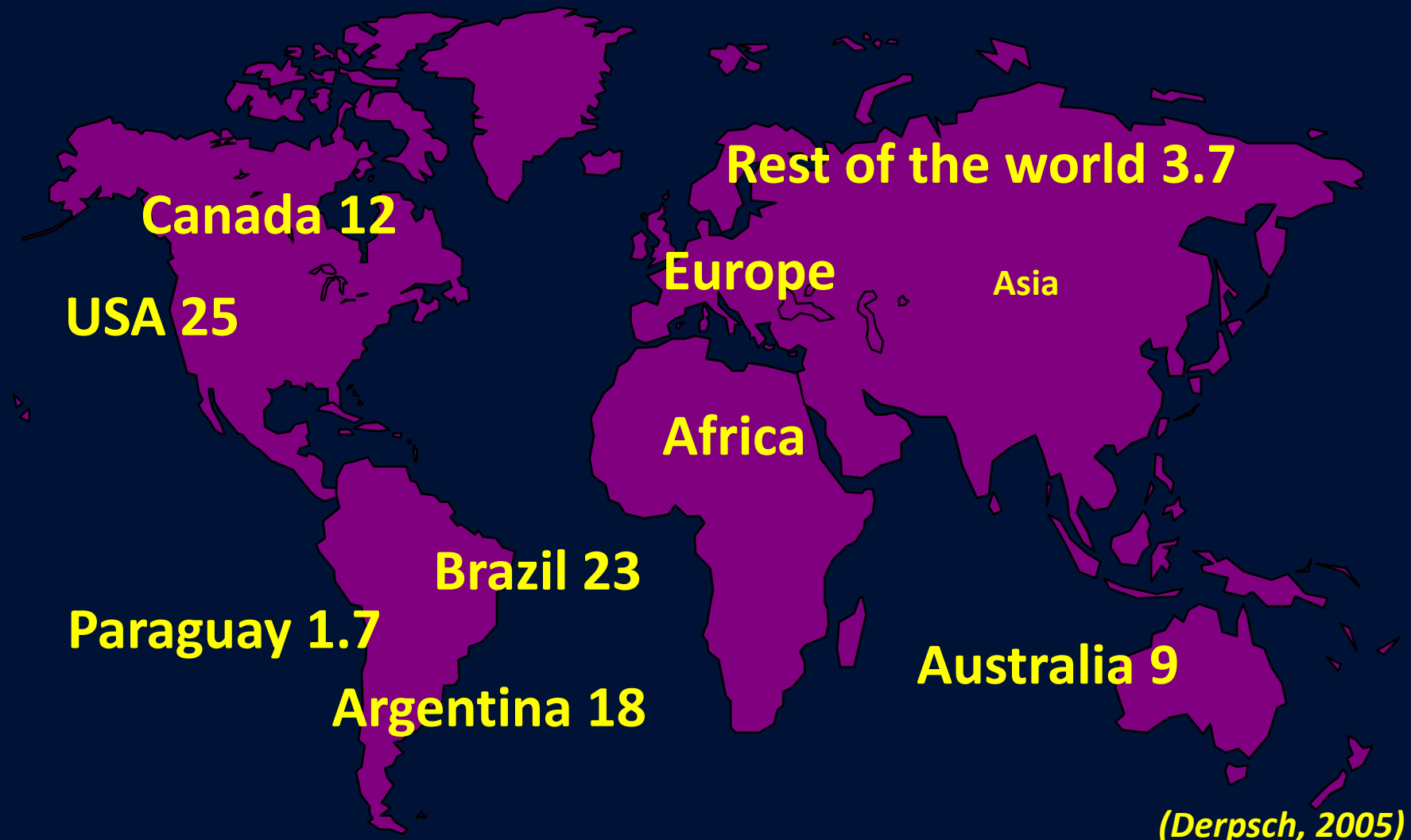


Source: Programa de Manejo, Recuperación y Conservación de Suelos, DEAG - MAG

(Derpsch, 2005)

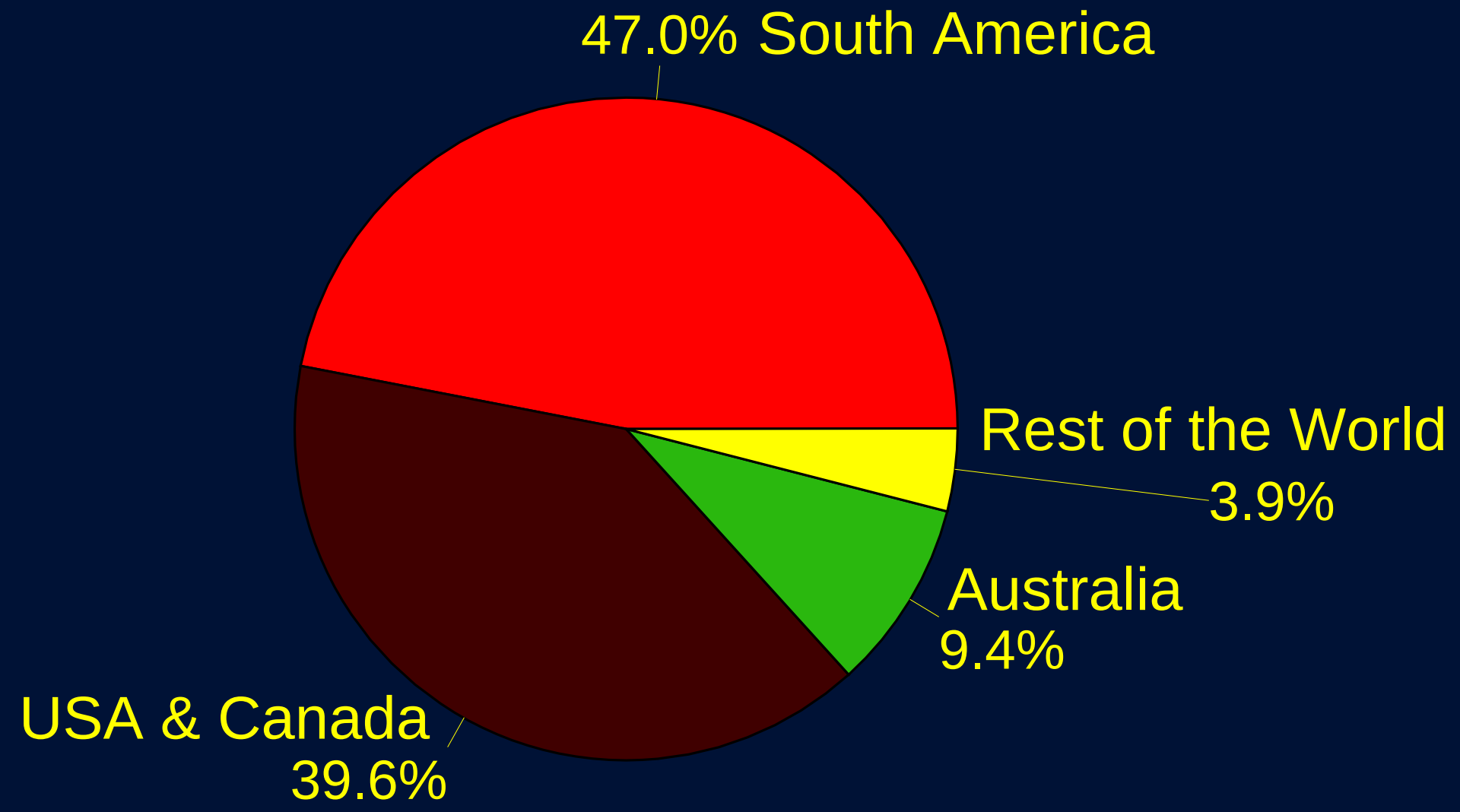
Area under no-tillage (million ha)

World total = 95 Million ha



(Derpsch, 2005)

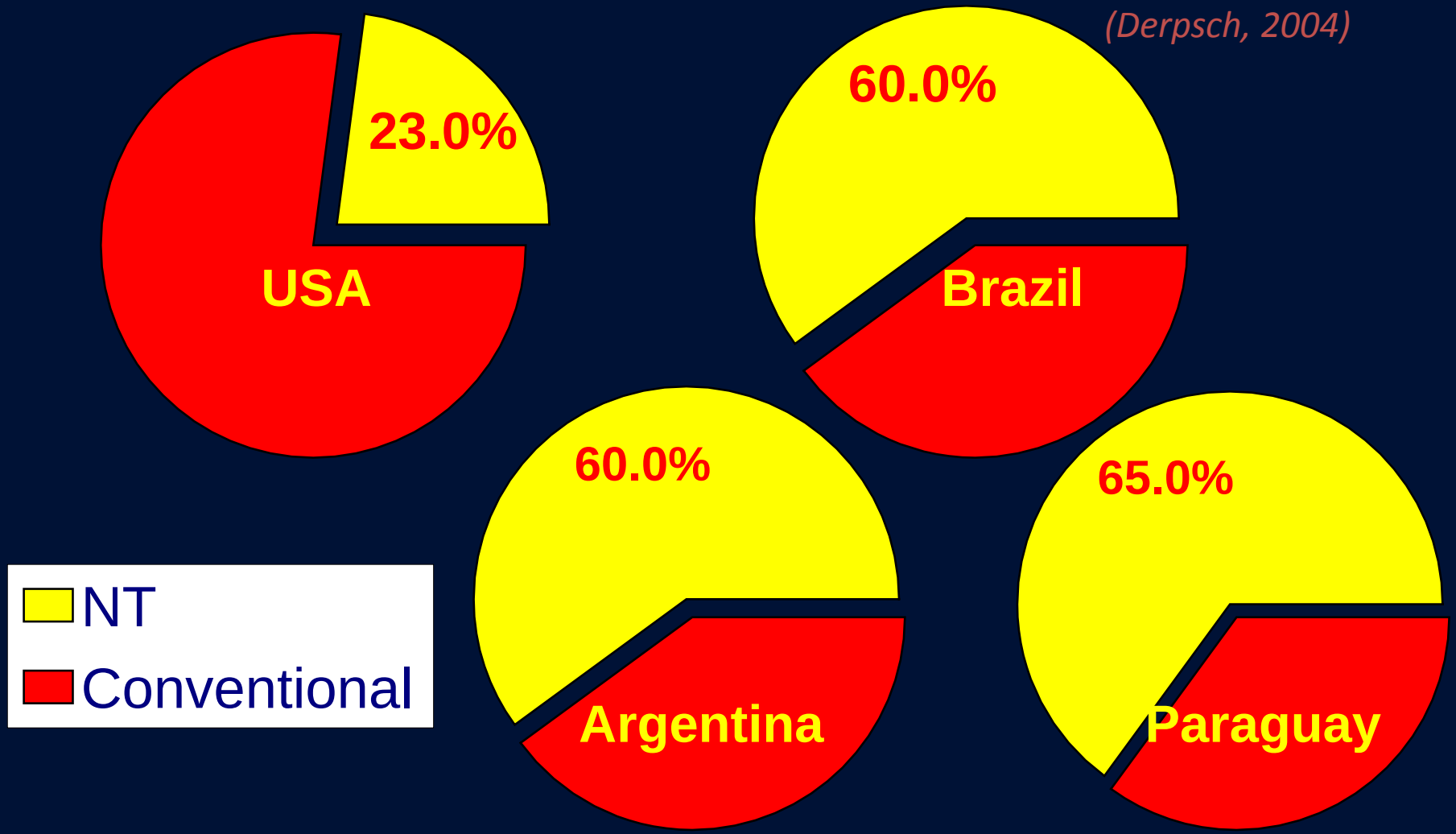
Percentage of no-till Adoption in the World



(Derpsch, 2004)

Percentage of no-till adoption in relation to total cultivated area

(Derpsch, 2004)



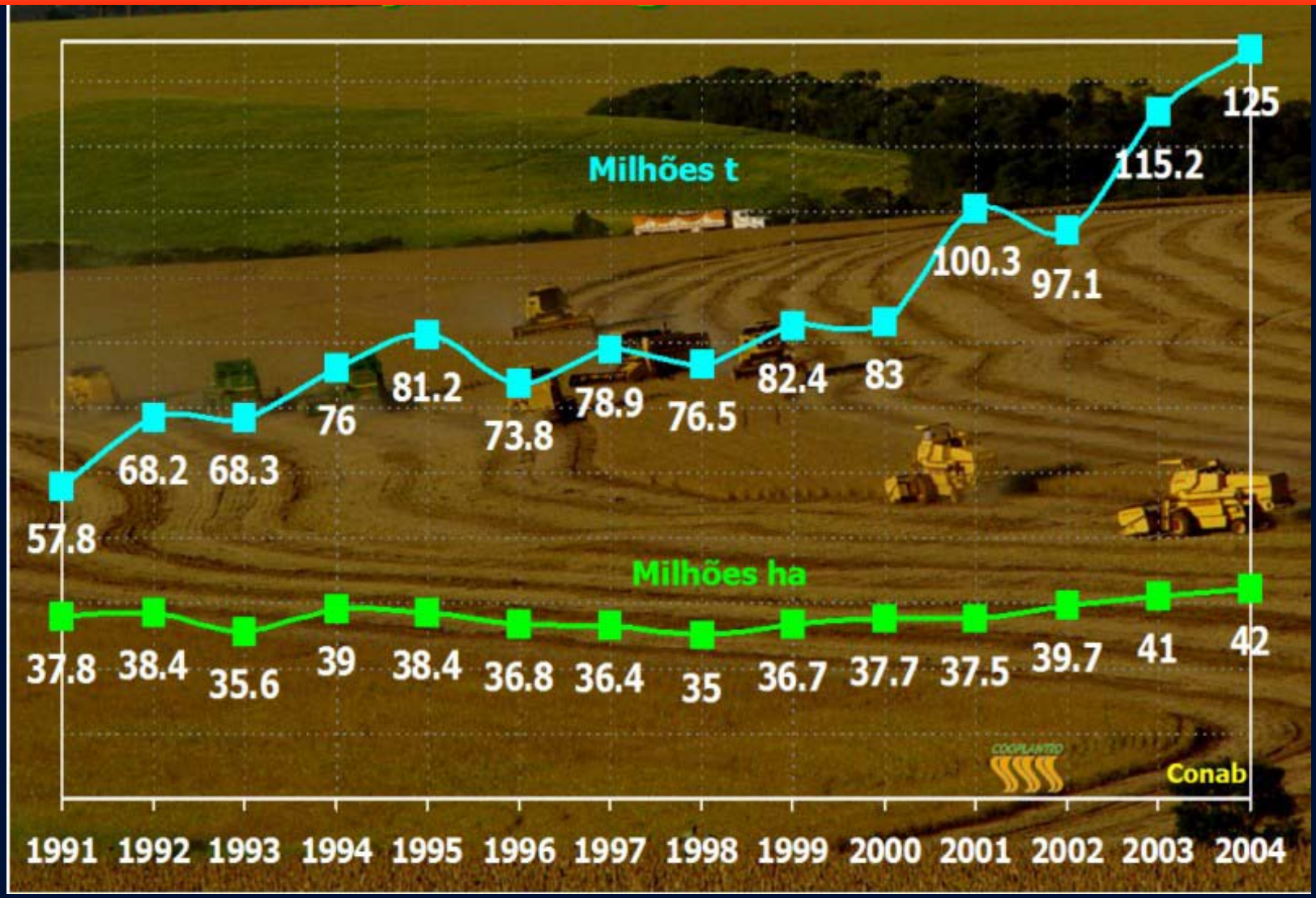
While only 10% - 12% of the area under no-tillage in USA is permanently not being tilled,

more than 90% of the area under no-tillage in South America is permanently not being tilled

(Derpsch, 2004)

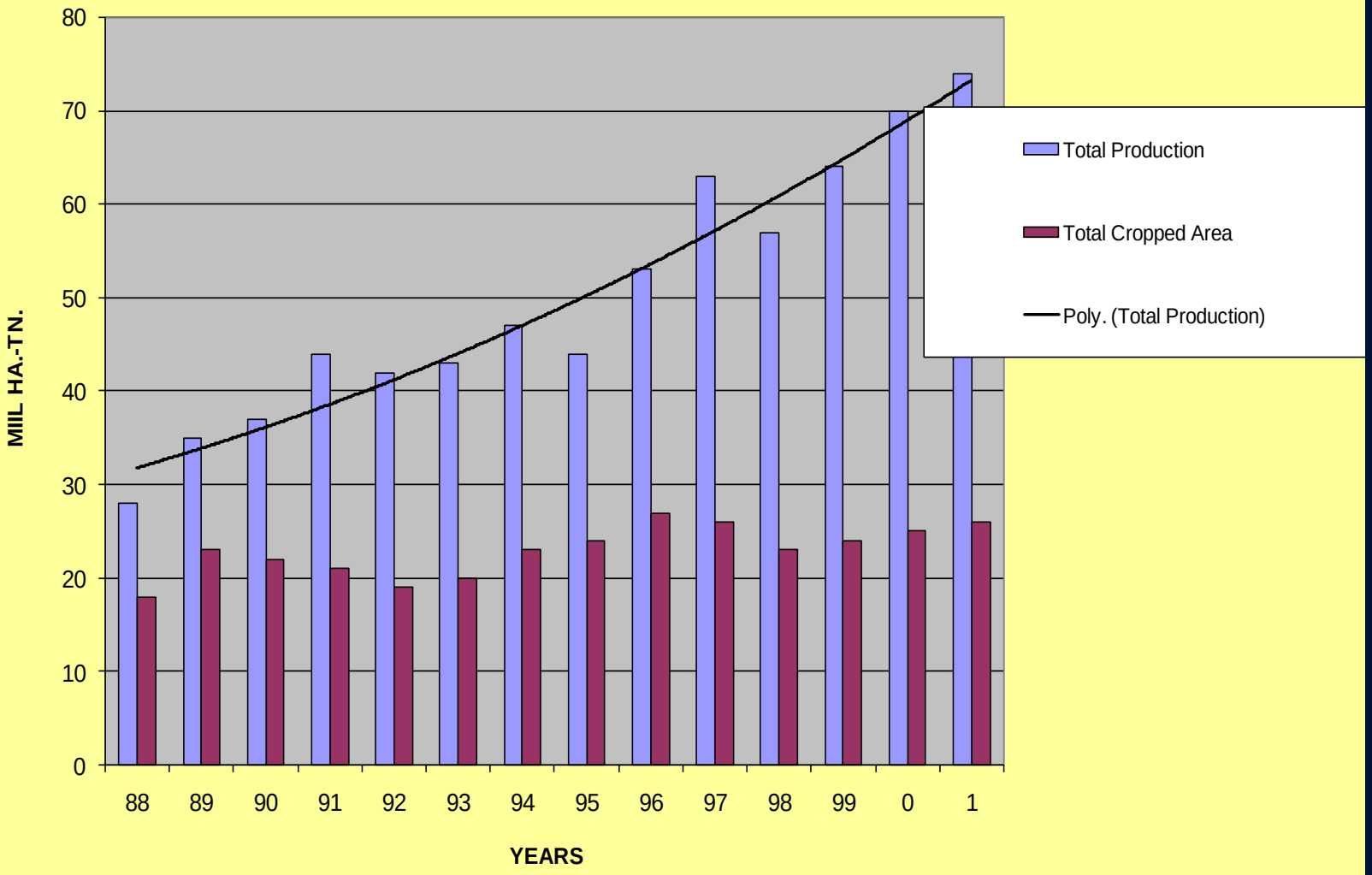
Effects on productivity

Grain production and area planted in Brazil



(COOPLANTIO/CONAB, 2005)

Grain production and area planted in Argentina

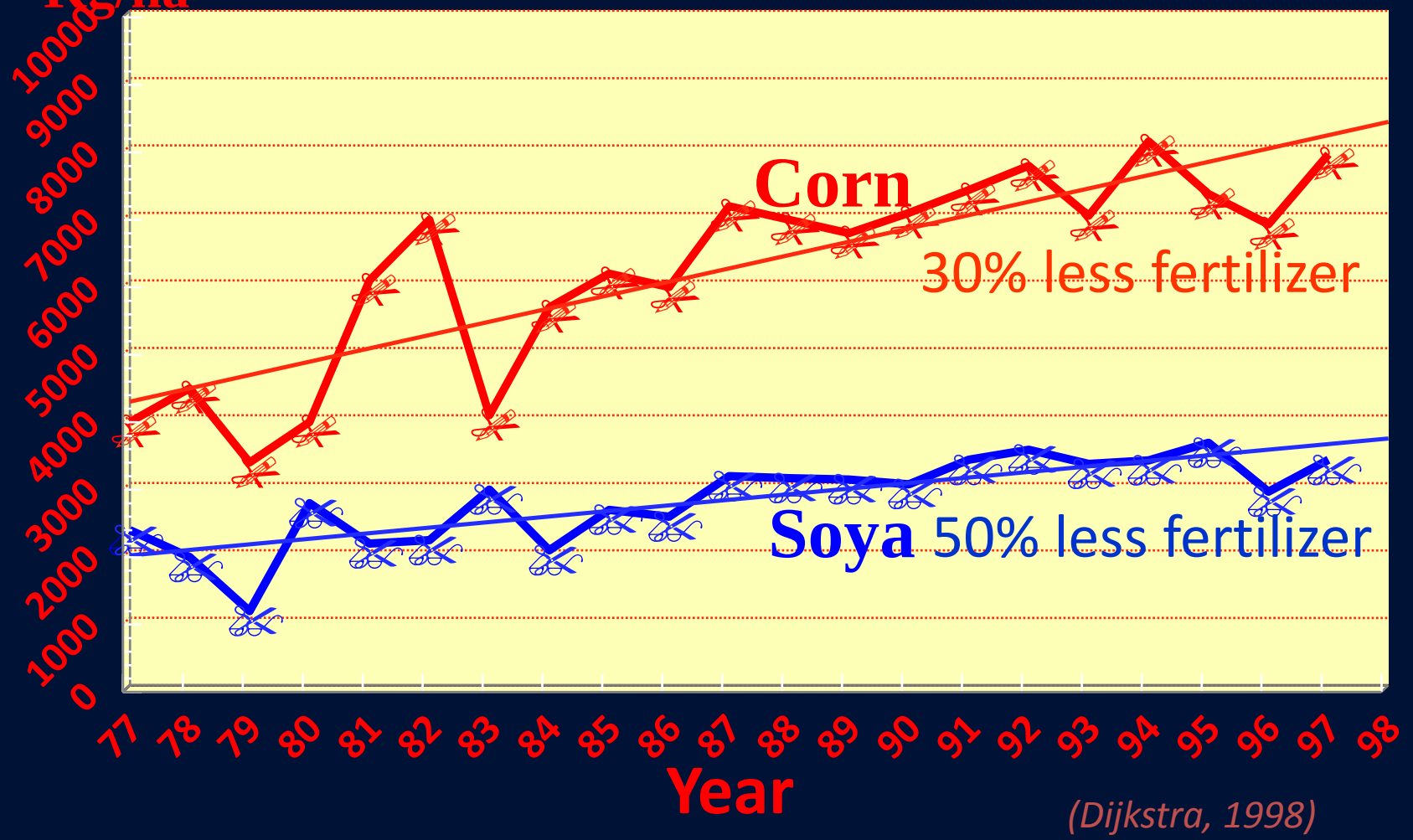


(Peiretti, 2002)

Impact of long term no-tillage in Brazil

Crop Productivities in No-tillage

Frank Dijkstra Farm, Ponta Grossa, Brazil



(Dijkstra, 1998)

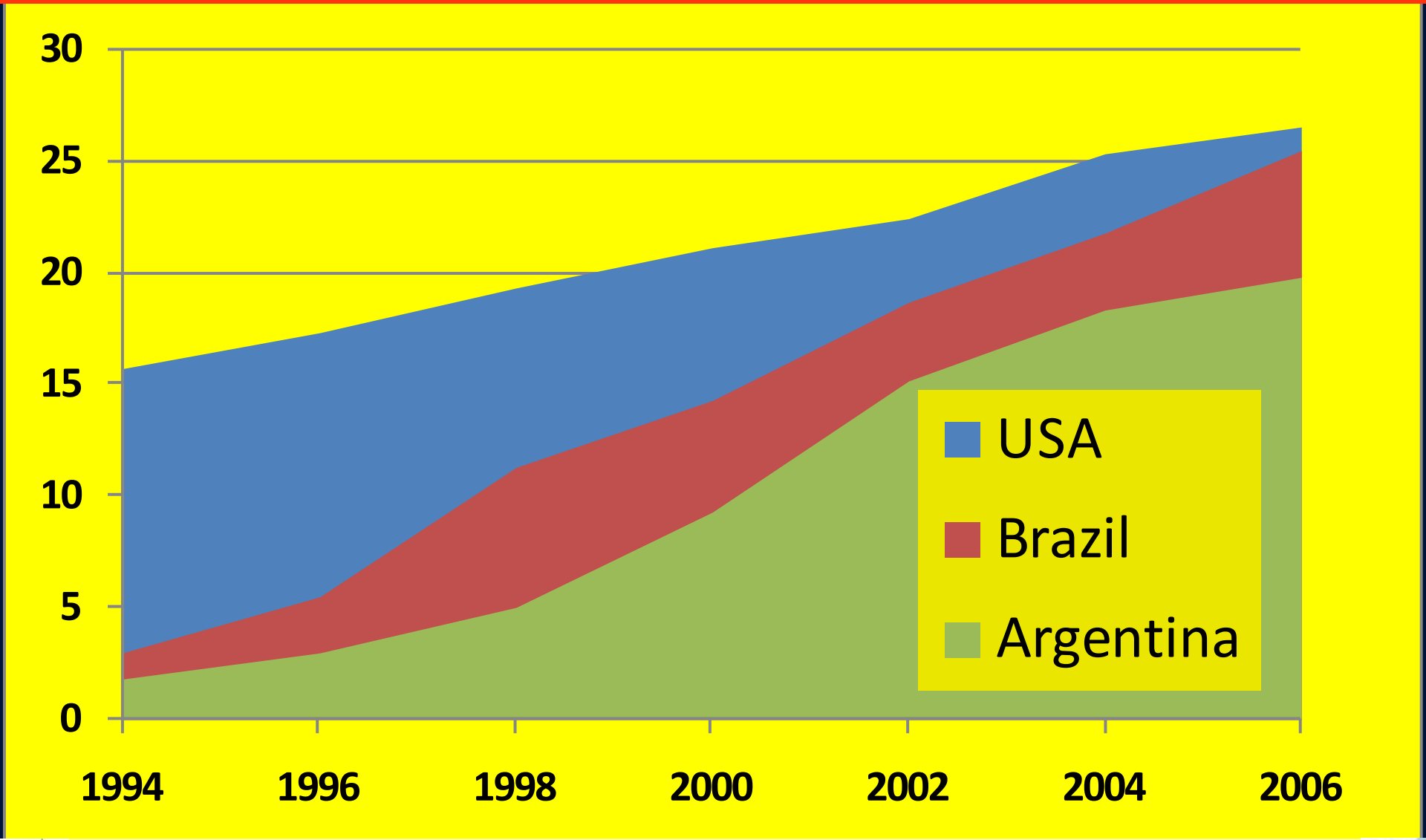
Recent evolution of NT uptake

Recent changes in uptake of NT (main countries)

Country	Year	Area (1000 ha)	Year	Area (1000 ha)	% increase
USA	2000	21.100	2007	26.500	26
Canada	2000	8.800	2006	13.480	53
Brazil	2000	14.300	2006	25.500	78
Argentina	2000	9.250	2006	19.720	113
Paraguay	2000	950	2008	2.400	153
Bolivia	2000	240	2007	706	194
Uruguay	2001	119	2007	672	465
Australia	1999	1.000	2007	12.000	1100

THE BIG ONES

Evolution of NT areas over the last 12 years



No-tillage areas

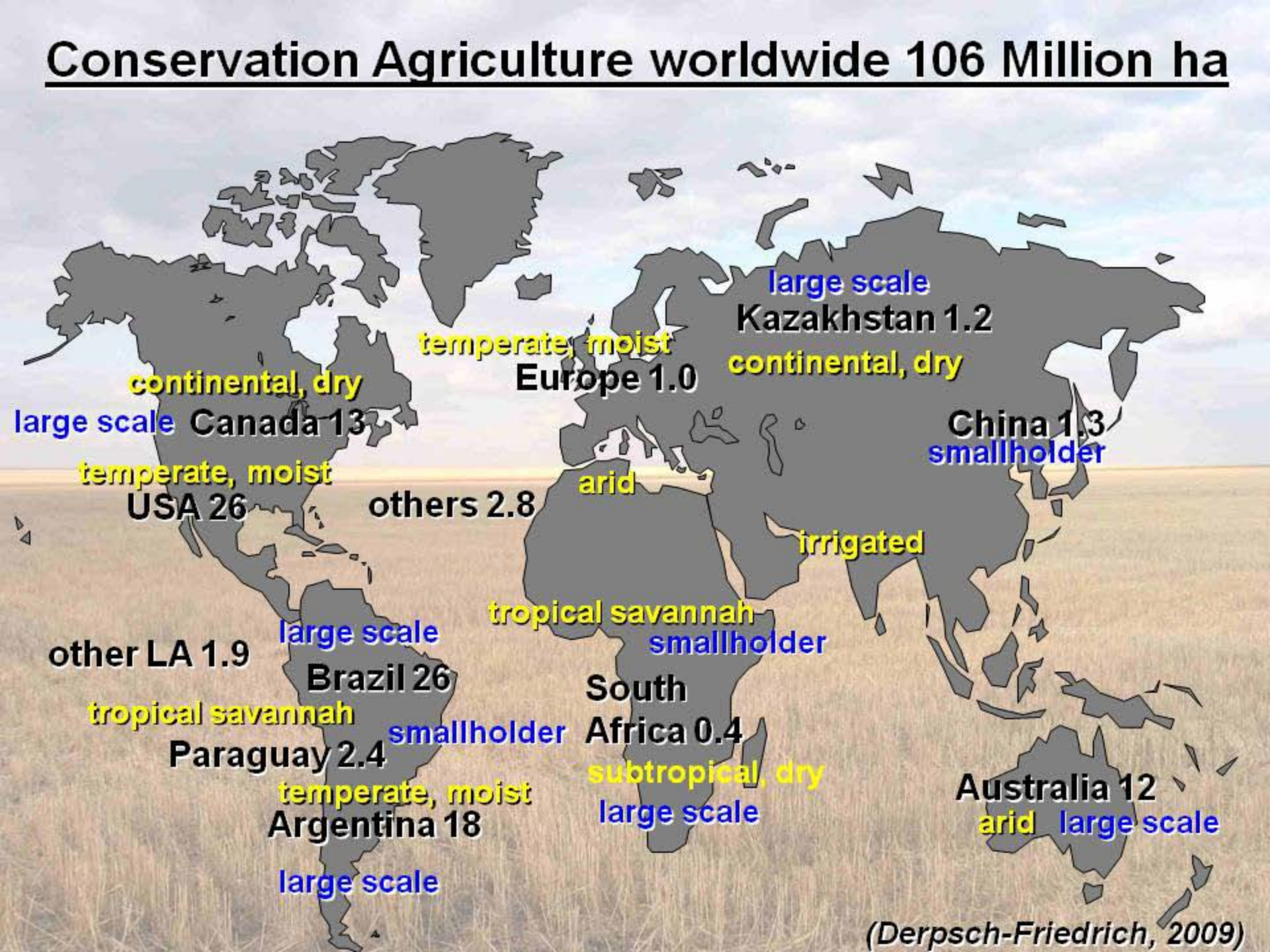
Top 20

Country	Area NT (2006/07/08)
USA	26.593.000
Brazil	25.502.000
Argentina	19.719.000
Canada	13.481.000
Australia	12.000.000
Paraguay	2.400.000
China	1.330.000
Kazakhstan	1.200.000
Bolivia	706.000
Uruguay	672.000
Spain	650.000

Country	Area NT (2006/07/08)
South Africa	368.000
Venezuela	300.000
France	200.000
Finland	200.000
Chile	180.000
New Zealand	162.000
Colombia	100.000
Ukraine	100.000
Russia	???
Others	1.000.000
Total	106.863.000

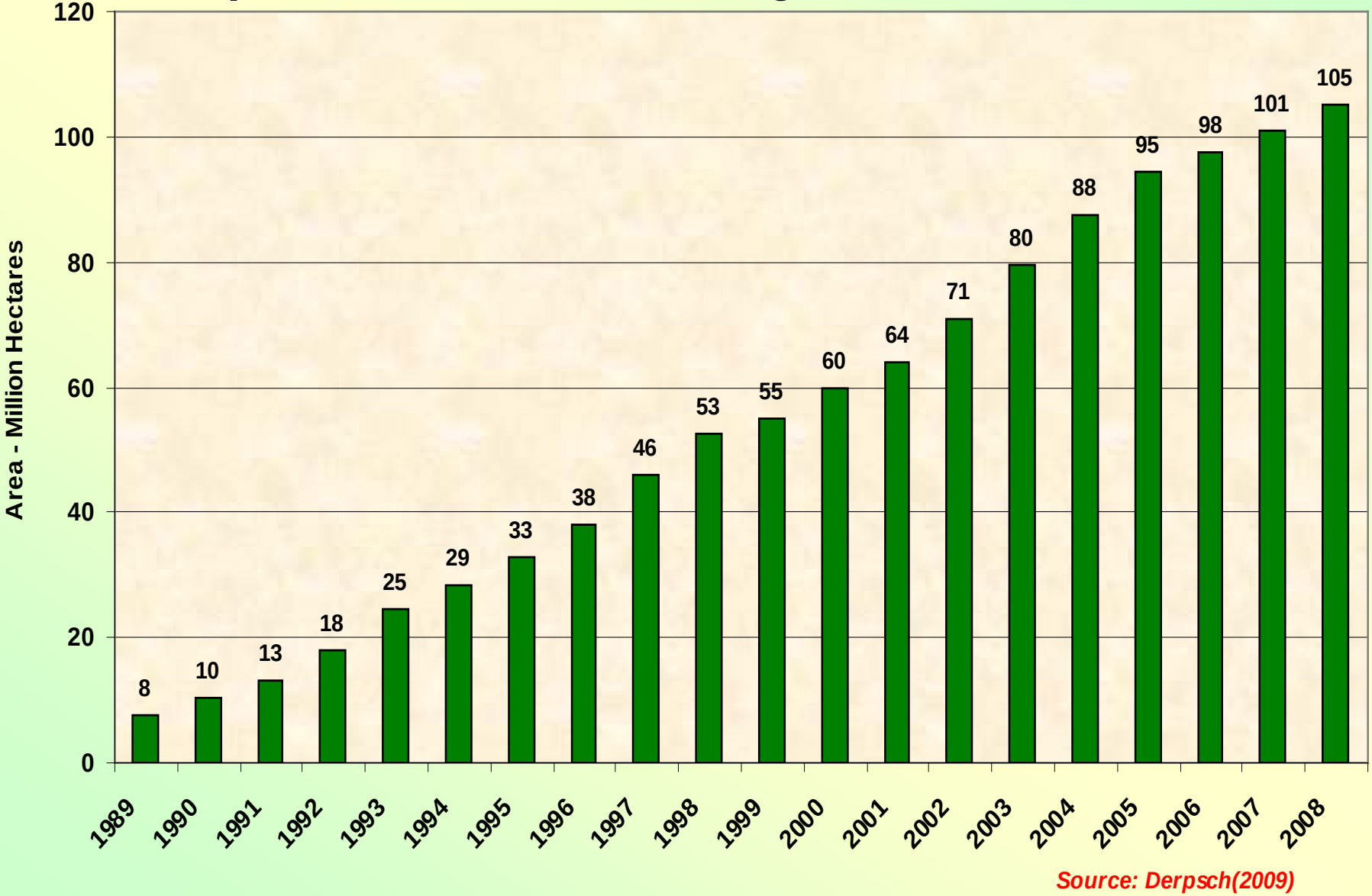
(Derpsch & Friedrich, 2009)

Conservation Agriculture worldwide 106 Million ha

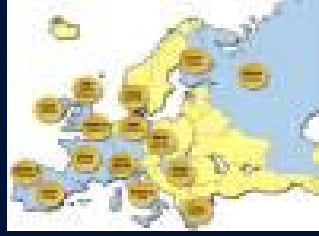


(Derpsch-Friedrich, 2009)

Adoption of Conservation Agriculture - Worldwide



Source: Derpsch(2009)



What about Europe

(the developing continent?)

Situation of CA in Europe

Country	Minimum tillage (1000 ha)	No-till (1000 ha)	Cover crops in perennial woody crops (1000 ha)	Total surface CA (1000 ha)	% NT/arable land	% CA/arable land
Belgium	140	n.d.	n.d.	140		17.2
Denmark	230	n.d.	n.d.	230		10.1
Finland	550	200	n.d.	750	9.1	34.1
France	3750	150	n.d.	3900	0.8	21.1
Germany	2300	200	n.d.	2500	1.7	21.2
Greece	230	100	n.d.	430	3.7	15.8
Ireland	10	n.d.	n.d.	10		0.9
Italy	480	80	n.d.	560	1.0	6.8
Hungary	490	10	n.d.	500	0.2	10.8
Portugal	300	80	30	410	4.0	20.6
Russia	15000	500	n.d.	15500	0.4	12.6
Slovak Republic	320	130	7	457	9.1	31.9
Spain	1500	700	850	3050	5.1	22.2
Switzerland	80	12	10	102	2.9	24.9
United Kingdom	2500	180	n.d.	2680	3.1	46.6
Total	27880	2342		31220	1.2	15.7

(data ECAF 2006/07)

What is necessary?

Have in mind what CAP is looking for?

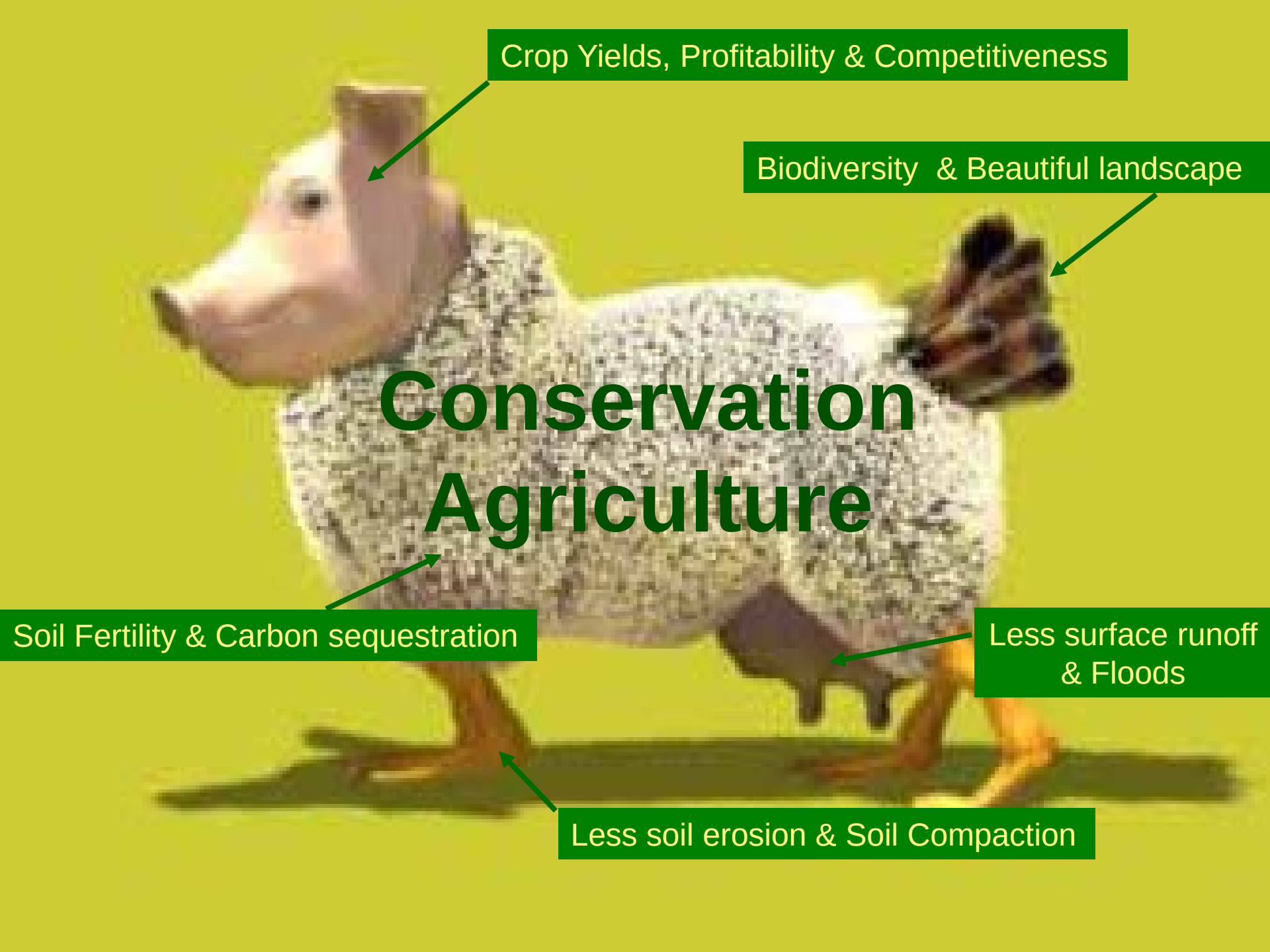
- Protection of soil, water, air, biodiversity, etc.
- Reasonable farm income
- Landscape management
- Globalization of agricultural markets

What is CAP looking for?

- Competitiveness of European agriculture
- Reduction of subsidies
- High quality products at acceptable prices
- Bio-energy crops

Maybe something like this?


Soil
Soil conservation &Sustainability
management


Crop Yields, Profitability & Competitiveness
Biodiversity & Beautiful landscape
Conservation Agriculture
Soil Fertility & Carbon sequestration
Less surface runoff & Floods
Less soil erosion & Soil Compaction