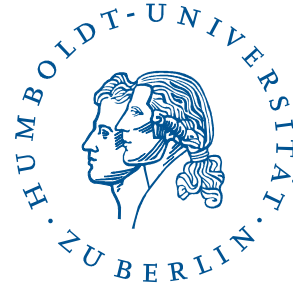


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***The contribution of the collapse of the Soviet Union
to deforestation and carbon emissions in Brazil***

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2nd International Conference on Global Food Security | 11 – 14 October 2015

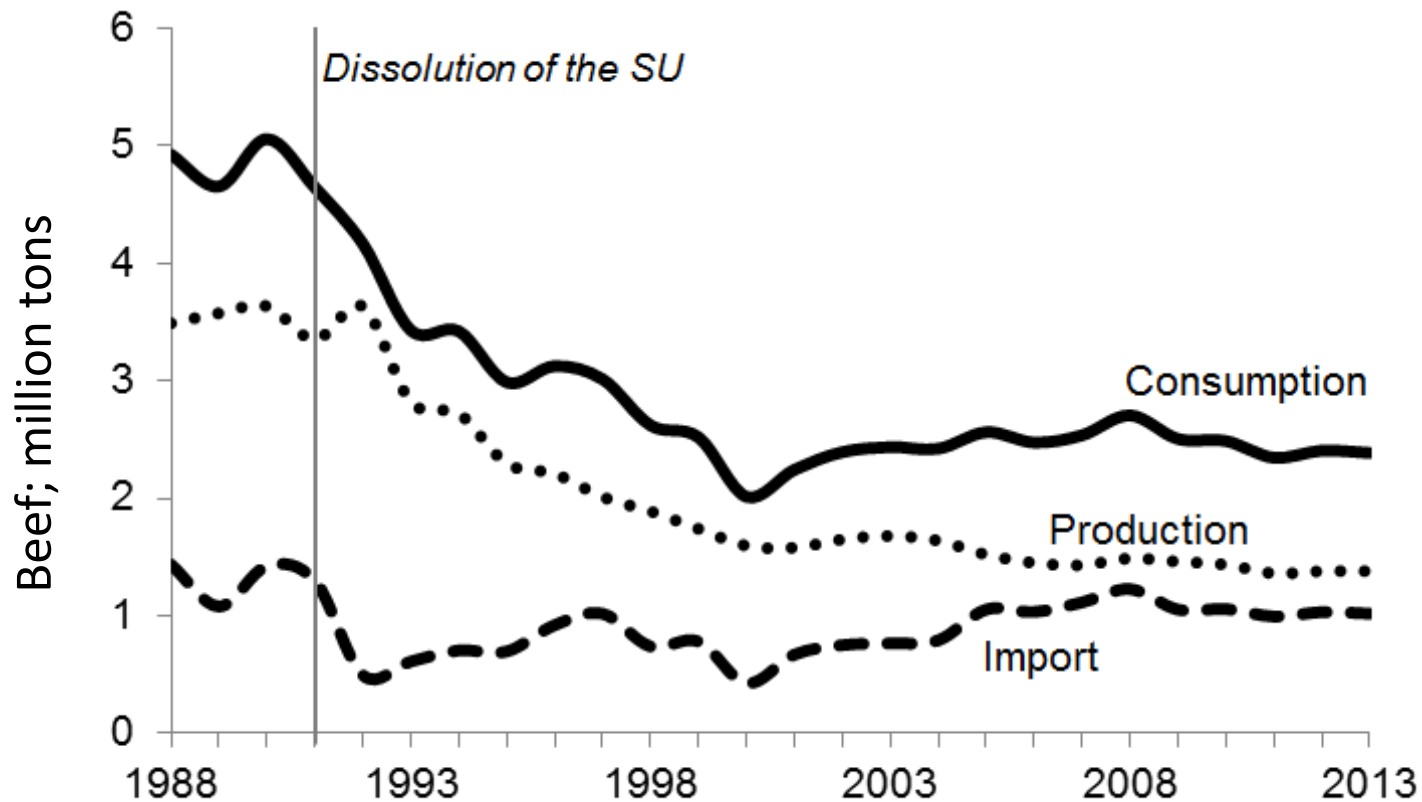
The collapse of the Soviet Union

- Corporate Soviet farms were heavily subsidized
- Dissolution of the Soviet Union in 1991
- Major socio-economic disturbances subsequently
- Collapse of the livestock sector
- Widespread farmland abandonment



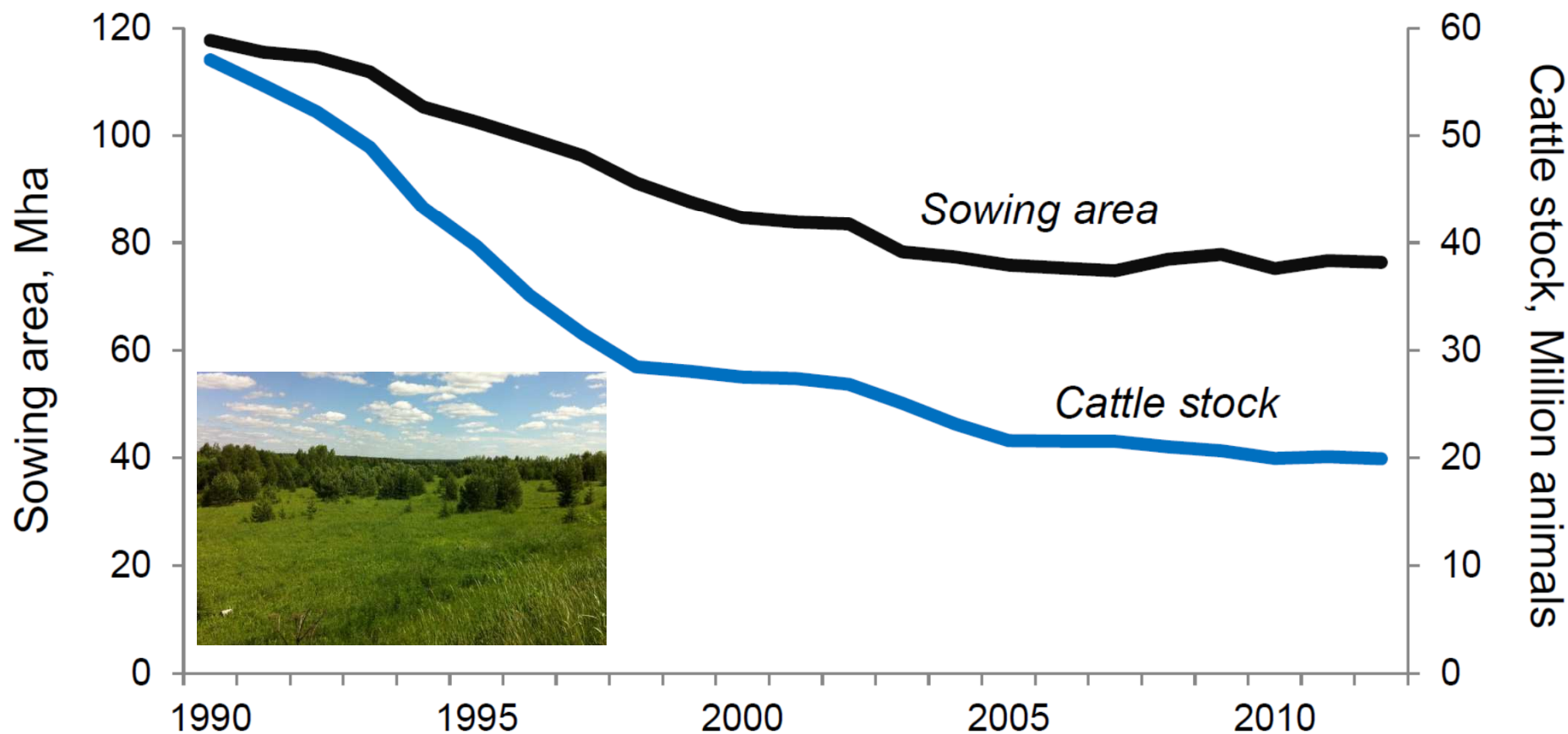
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Sharp decline of beef production in Russia



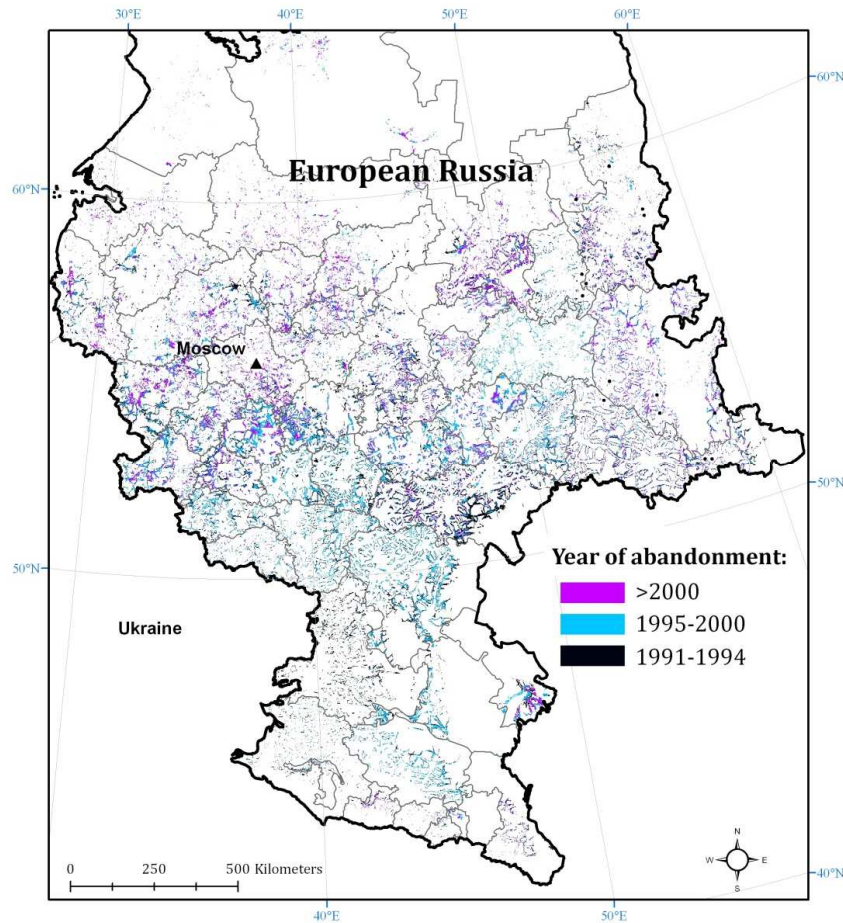
Source: USDA

Collapse of the livestock sector triggered land abandonment



ROSSTAT 2015

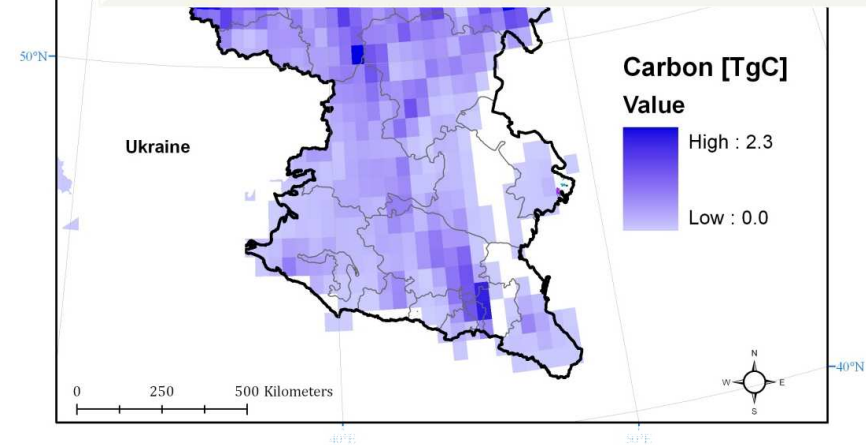
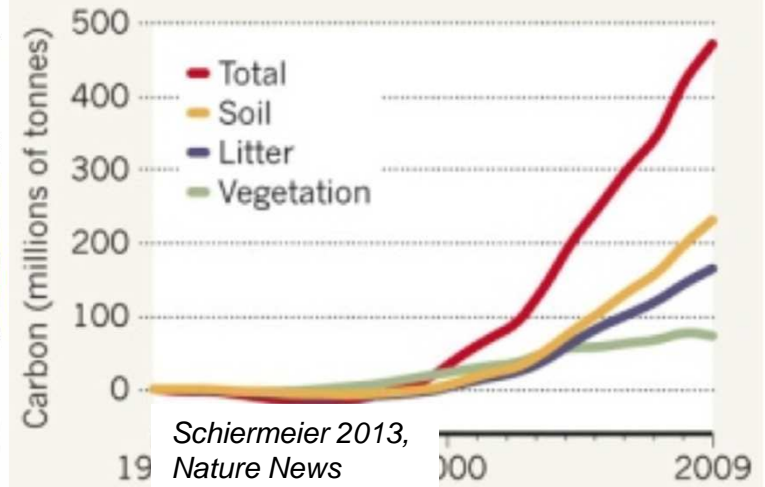
Cropland abandonment



➤ 26 Mha of abandoned cropland

CARBON GOES WILD

Amounts of carbon sequestered in abandoned cropland in western Russia and Ukraine rose sharply after 2000 as wild vegetation grew taller and thicker.



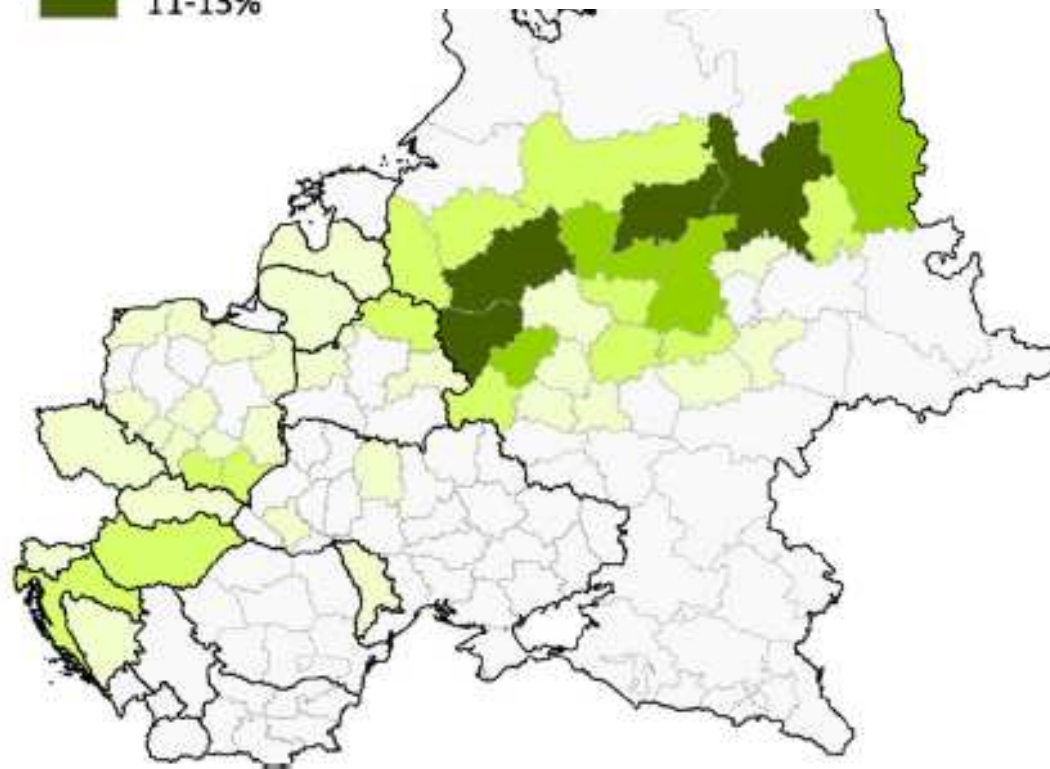
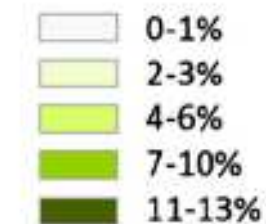
➤ Net carbon sink of 470 TgC

Schierhorn et al. 2013, Global Biogeochemical Cycles
 Schierhorn et al. 2014, Global Food Security

Forest gain on former agricultural areas

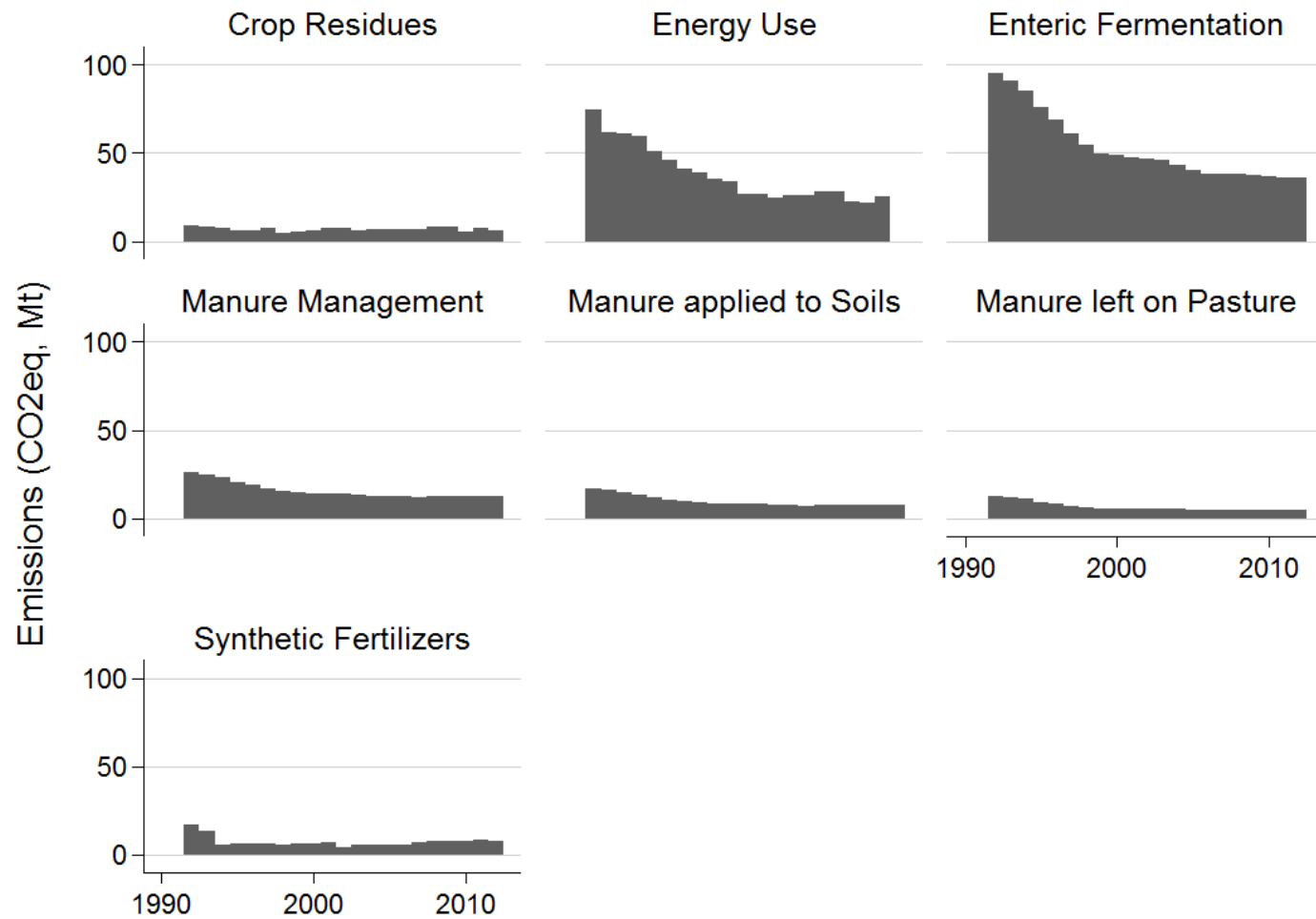
6.5 Mha of new forests on abandoned lands!

Forest gain relative to the total non-forest land area in 1985



Potapov et al. 2013, RSE

Agriculture's greenhouse gas emissions in Russia

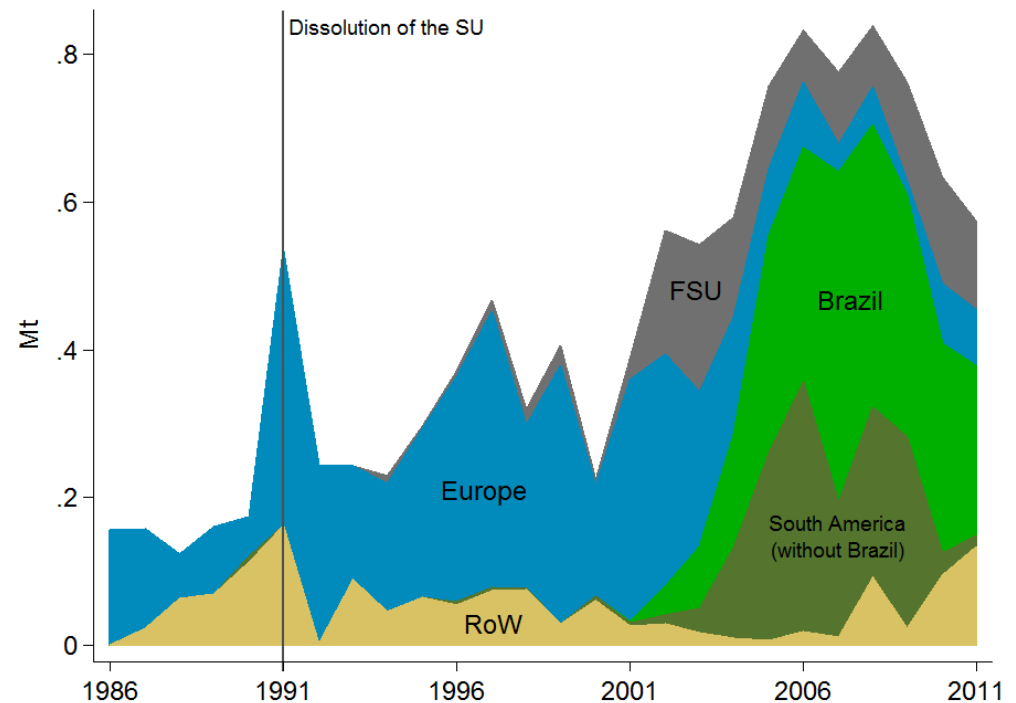
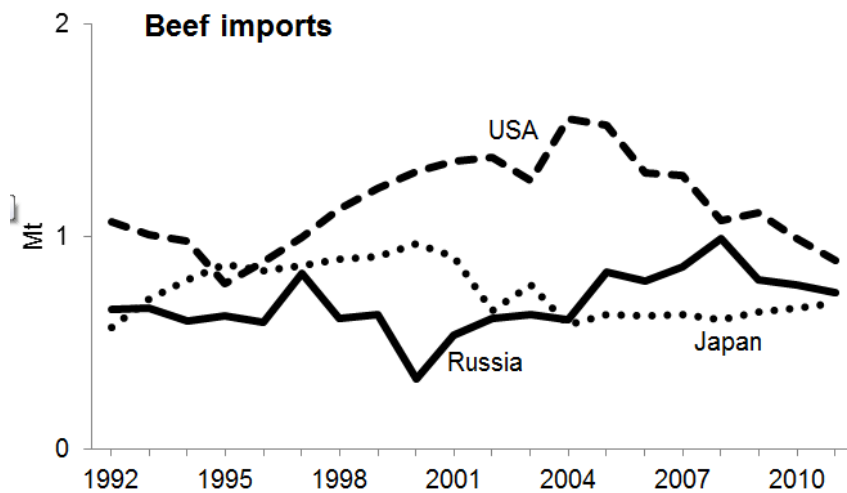


- The dissolution of the Soviet Union triggered one of the most important natural restoration “projects” in human history.
- However, livestock production and land competition was increasingly displaced, particularly to Brazil.



Beef-related teleconnection between Brazil and Russia

Top-3 beef importing nations



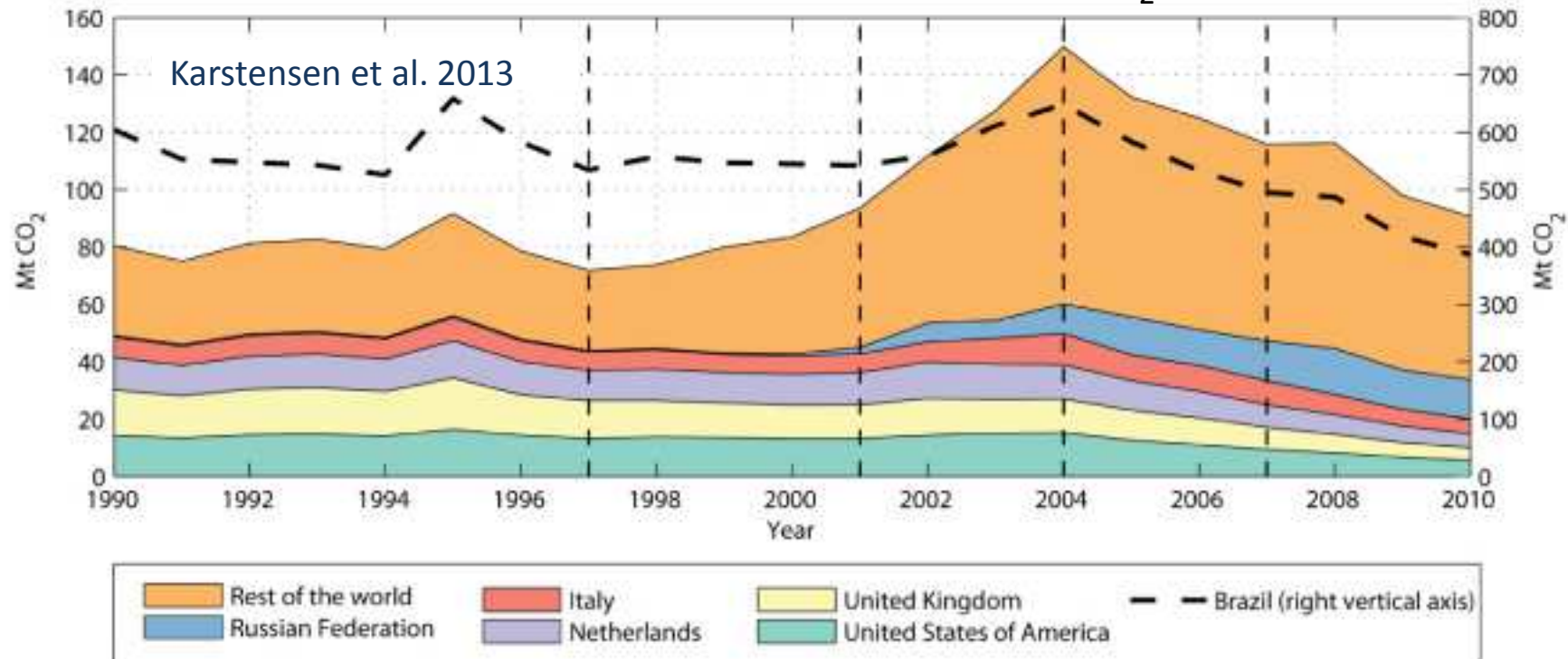
64% of Brazil's meat export were heading to the Russian market in 2014!

Beef exports to Russia

Source: FAO 2015

CO₂ emissions from Brazilian deforestation

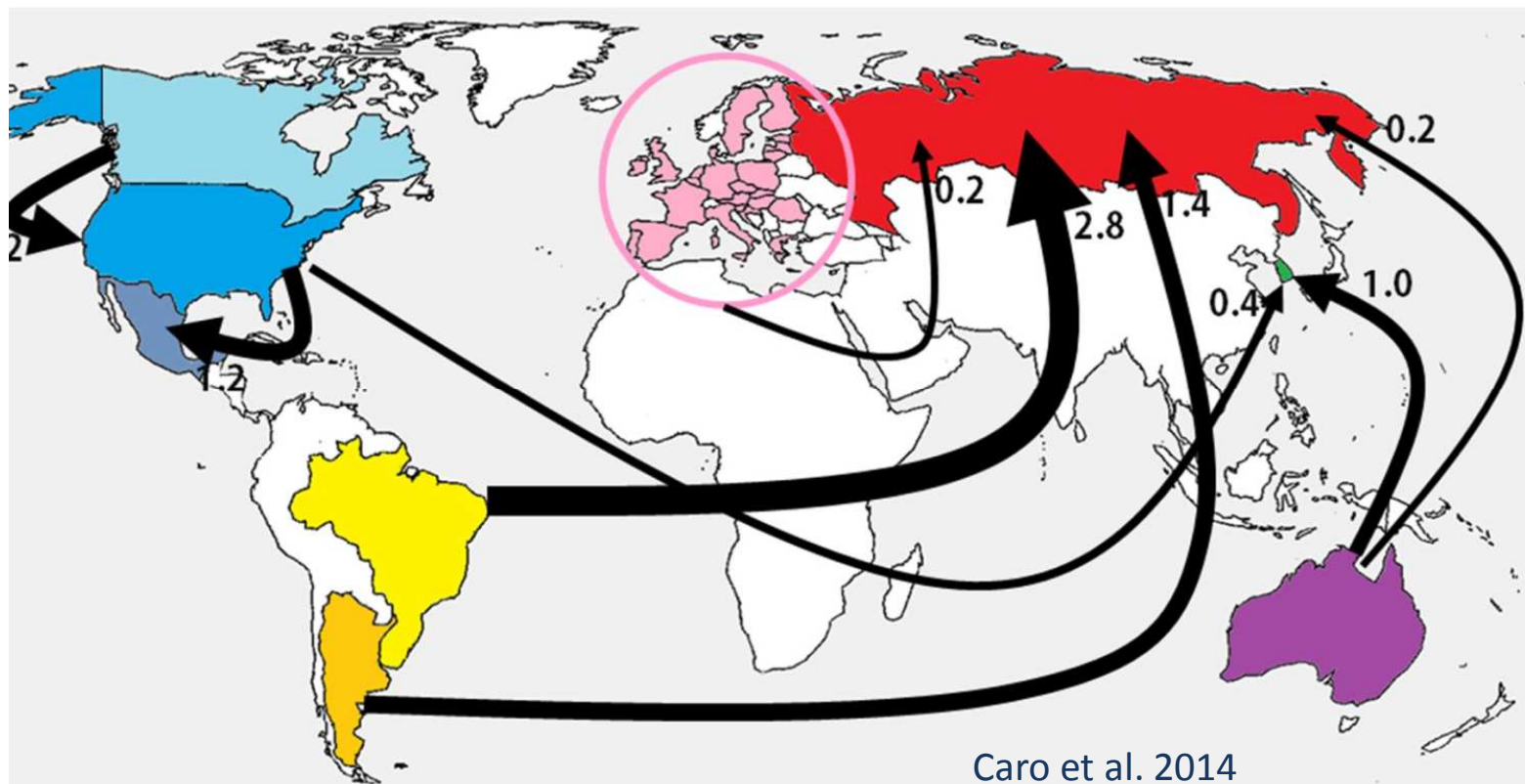
Emissions embodied in Brazilian beef, Mt of CO₂



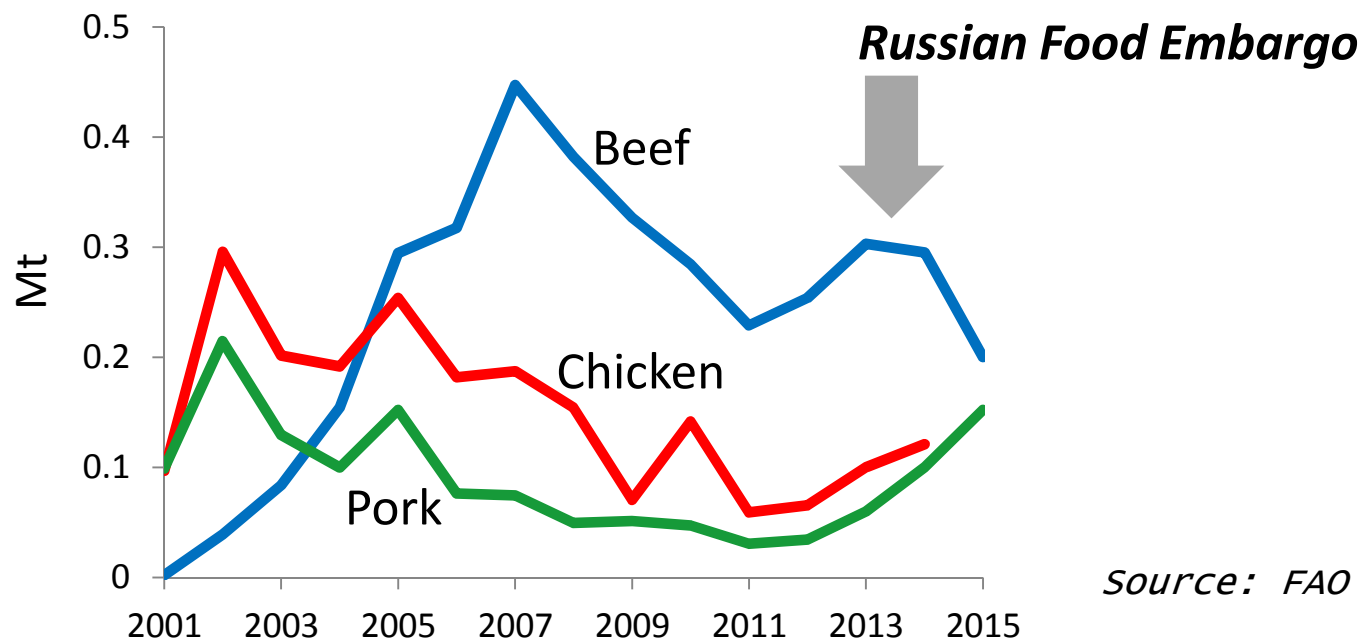
Russia has become the world's largest importer of CO₂ emissions embodied in Brazilian beef!

Non-CO₂ emission embodied in traded beef

Non-CO₂ emissions in 2010, Mt of CO₂-eq



Brazilian meat exports to Russia



Decreasing beef exports:

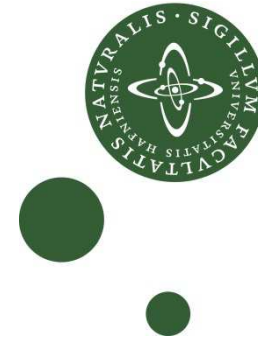
- Low oil price and steep devaluation of the ruble
- Plunging incomes and beef substitution by pork & chicken
- Tightening of sanitary controls

- Major socio-economic disturbances triggered widespread agricultural abandonment in Russia
- The collapse of the beef sector in Russia increased demand for land in the Brazilian Amazon
- Russia is increasingly dependent on Brazilian meat
- In response to recent geopolitical crises, Russia strives to achieve self-sufficiency in meat production
- However, it is unclear to what extent Russia will be able to revive the livestock sector
- The future development of the Russian meat sector is utterly important for the Brazilian Amazon!



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Thank you!

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