The Importance of Regulatory Co-operation for Innovation

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SUSTAINABLE AGRICULTURAL INNOVATIONS & FOOD
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Regulations stifle innovation

Between 1980 & 2012, increased regulation cost the US economy $4 trillion

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Regulatory confirmation of GM crop safety

- Since 1994, over 4,400 risk assessments have been conducted on GM crops in 72 countries
- Not a single risk assessment identified a level of risk different from that of a non-GM variety
- There is now a global **scientific consensus** that GM crop varieties are no riskier than non-GM varieties
- All crop and food production has risks, the concept of zero risk is a social construct and a false one
- There are thresholds in commodity production and transportation and food production for harmful items

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The cost of ‘uncertainty’

- Inconsistent regulations reduce the incentive to invest
- Efficient investment requires consistent, timely and repeatable regulatory decision making
- Increased scientific evidence and knowledge should improve regulatory decision making
- Inconsistent regulatory decisions and lengthy time delays creates a disincentive for both public and private investment
- FAO data shows that between 1995 and 2019, US crop productivity increased by 38%, Canada by 28%, while in the EU it was 7%

Source: FAO www.fao.org/faostat/en/#data/QI

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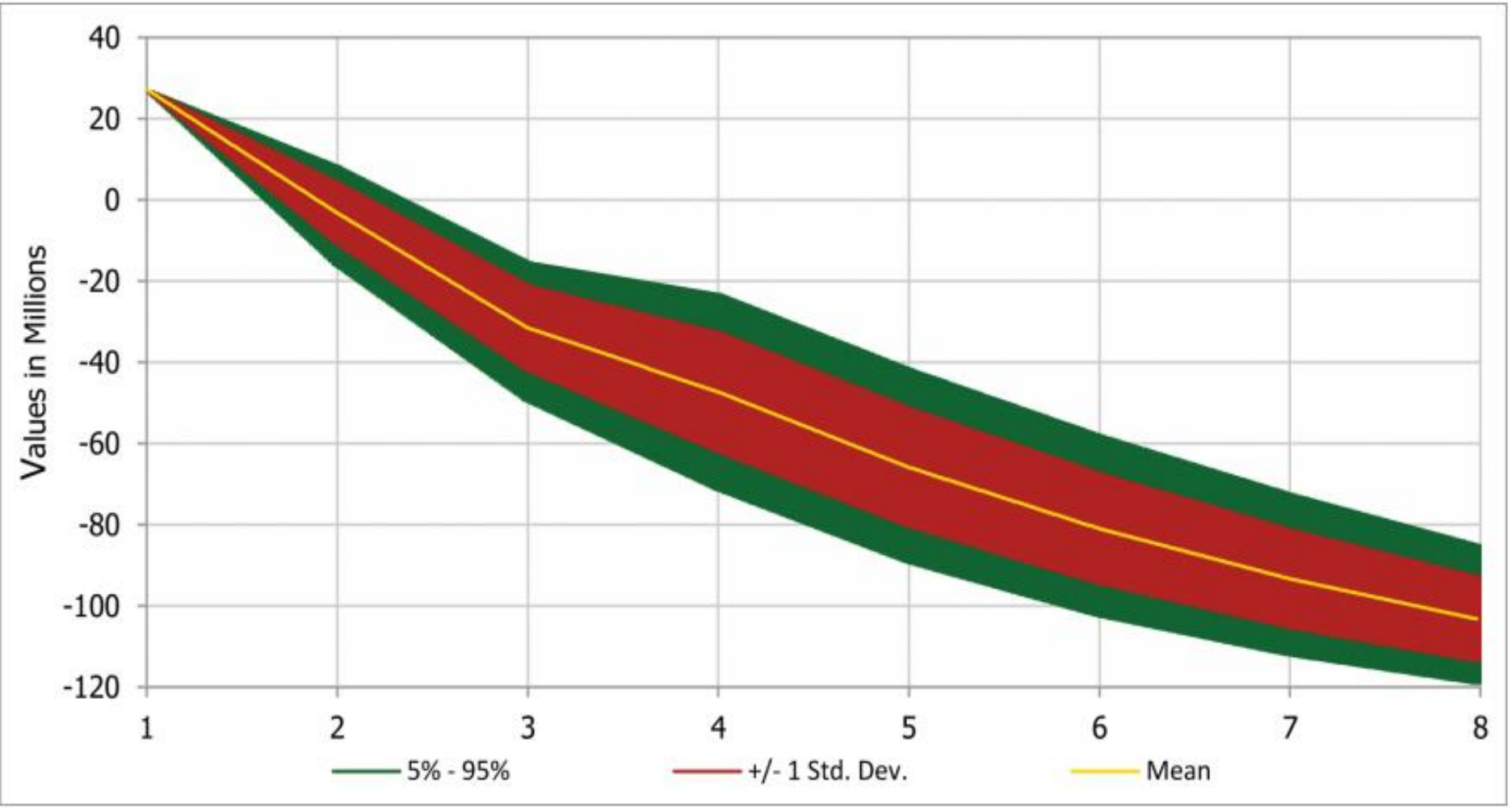
Effects of regulatory barriers on public R&D investment



Source: Smyth et al. 2014. https://doi.org/10.4161/gmcr.27465

Effects of EU regulatory barriers

- In 1995, the European Union accounted for 33% of global ag R&D investment
- This amounted to ~US$2.25 billion per year
- By 2014, this dropped to 7.7%
- It is estimated this reduction in R&D investment has resulted in the EU receiving over $30 billion less R&D funding since 1995
- An additional cost is the thousands of people that have moved elsewhere to do their graduate research or scientific research work

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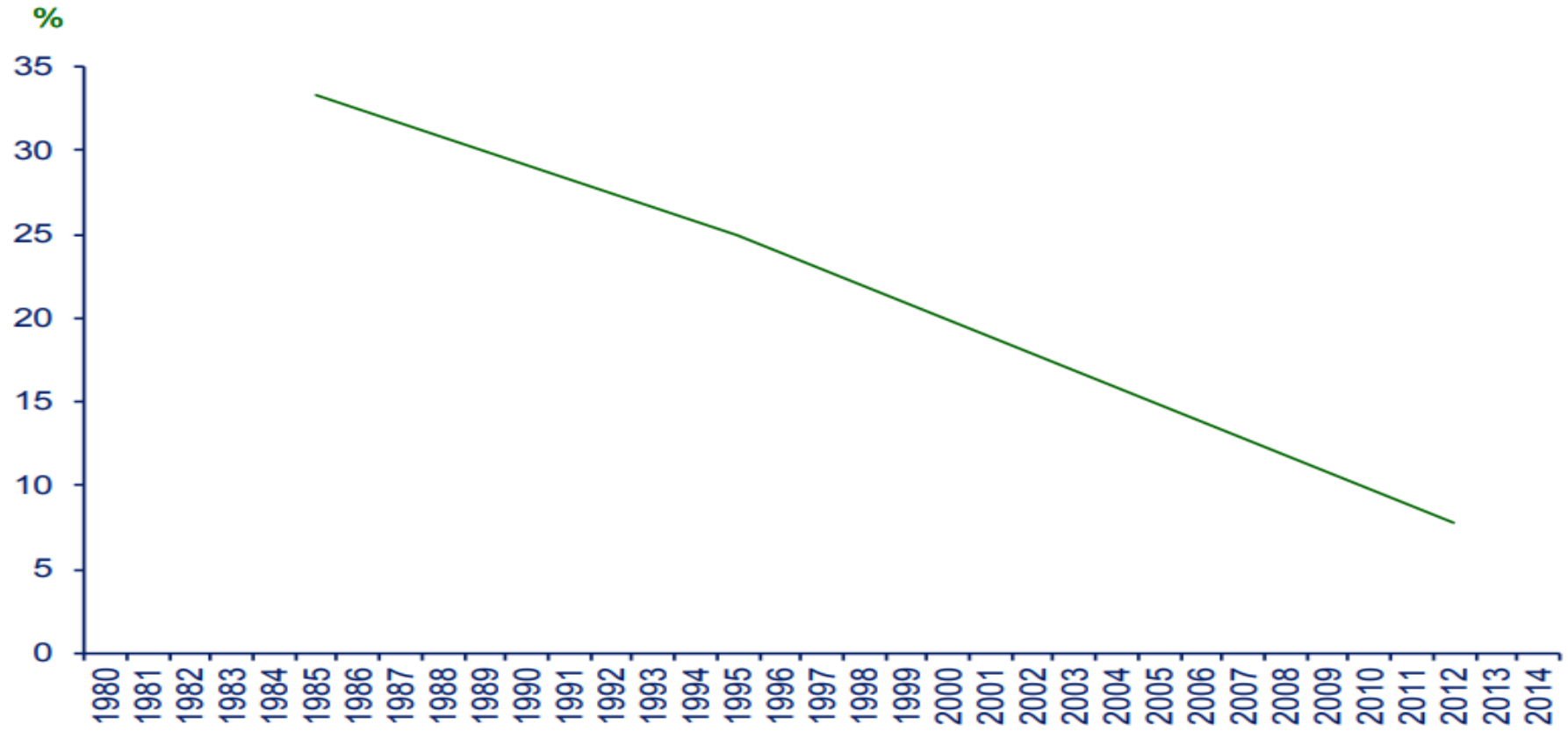
Effects of EU regulatory barriers

Figure 11: *Share of crop protection R&D focussed on Europe*



Source: CropLife Europe 2013. https://croplifeeurope.eu/rd-trends-for-chemical-crop-protection-products/

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Innovation crucial for trade

- Product and process innovations contribute to higher production
- Higher production contributes to higher trade and increased domestic GDP
- Regulatory efficiency is the main driver of R&D investment
- Regulatory cooperation contributes to regulatory efficiency
- Increasingly, regulatory efficiency is going to be a key factor of economic growth

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Importance of innovation

- Mitigating climate change will require many innovative products and technologies
- Researchers at the University of Illinois have developed a new variety of soybean that sequesters more carbon, while increasing yield by up to 33% (de Souza et al. 2022)
- Agriculture has tremendous potential to make beneficial contributions to adapting to climate change
- It's estimated that the benefits of GM crops were only one-third of their potential due to regulatory barriers (Hansen & Wingender)
- Since 1960, food production has risen 390%, while only 10% more land is being used – this is due to innovation

Source: de Souza et al. 2022. https://www.science.org/doi/10.1126/science.adc9831
Hansen & Wingender 2023. https://doi.org/10.1257/aeri.20220144

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Key observations

- Regulatory efficiency now drives private sector R&D investments
- With the development of a new GM crop variety costing about US$150 million, this investment will be made where there is the most effective regulatory system
- These investments create and sustain, hundreds of high paying job and substantial economic activity and GDP growth
- Regional regulatory cooperation contributes to the commercialization of innovative products and technologies

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