

# steward redqueen



**Who benefits from IP rights for agricultural innovation?**

***The Case of Ogura Oilseed Rape in France***

GMCC – Amsterdam, 18 November 2015



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# Introduction & Objective

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IP rights are meant to spur agricultural innovation but their use is increasingly being questioned

Crop Life and EuropaBio asked Steward Redqueen to examine the economic benefits of IP rights for agricultural innovation:

- *Who benefits from IP rights for agricultural innovation and to what extent?*
- *What is the trade-off between current and future benefits of IPR use in agriculture?*

The framework has been tested for (hybrid) Ogura Oilseed Rape in France

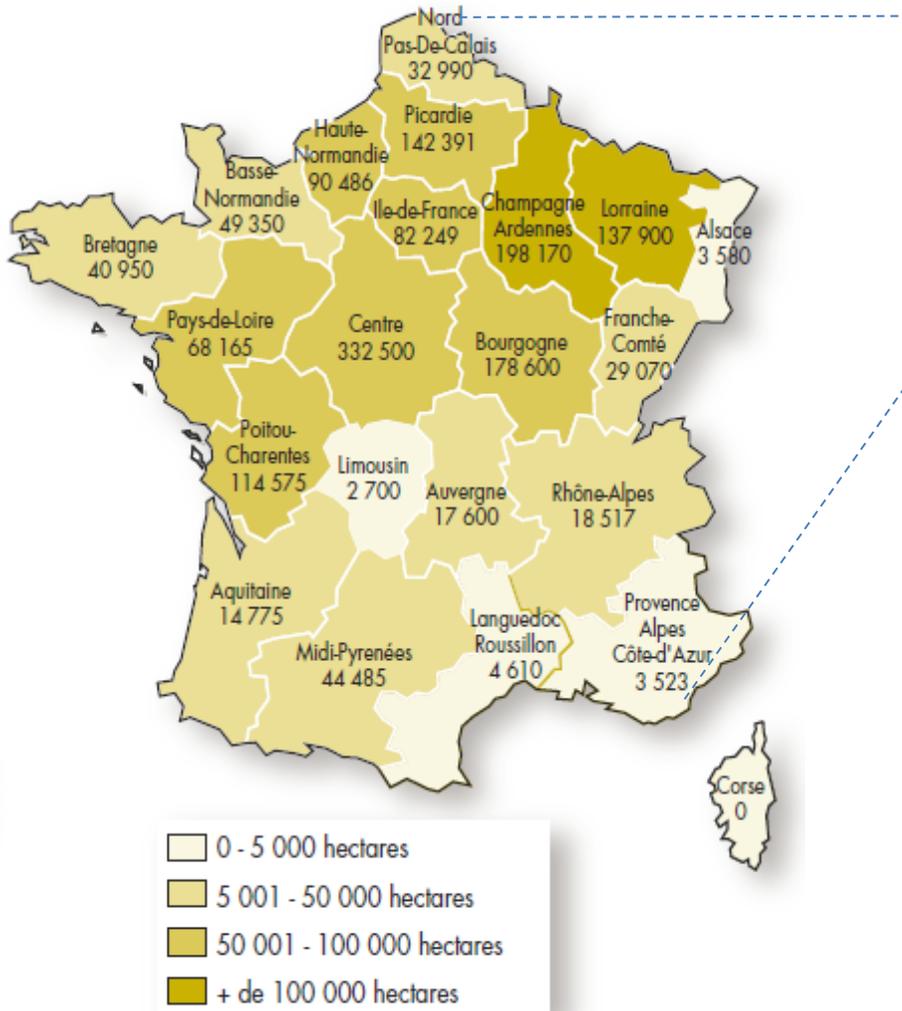
## General lessons of the Ogura case

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- 1 Of all benefits, 50% accrue to farmers while 25% most likely trickle down to the end-consumer
- 2 IPR is essential to enable innovation as it provides the ability to recoup R&D investments
- 3 IPR substantially increases the probability of innovations happening
- 4 Even under exclusive use, pricing power of the innovator is limited

# Oilseed Rape in France represents 8% of global production

Oilseed Rape (OSR) in France in 2014: commodity for Food, Feed and Biodiesel



**8%**

of global production

**5.5m**

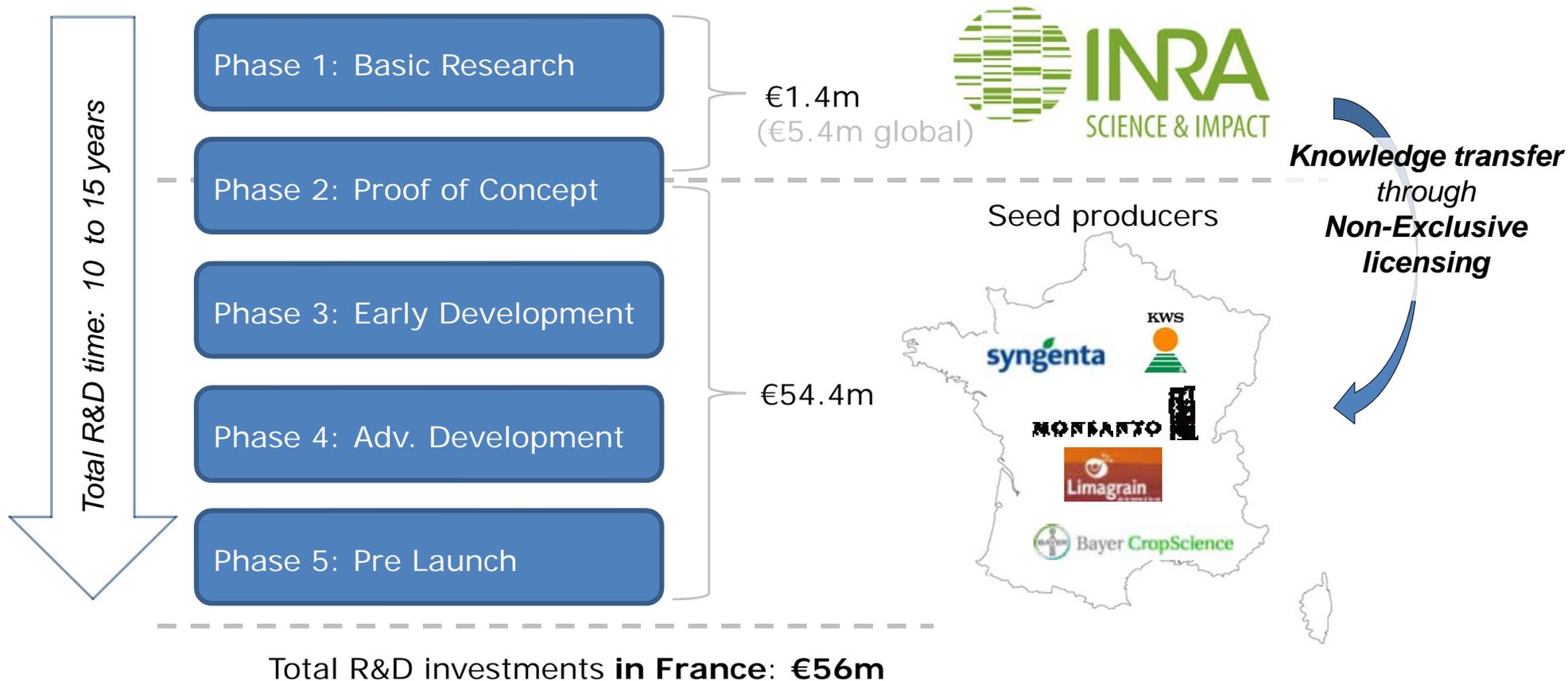
metric ton production

**70-100%**

EU OSR price increase since 2000

# Ogura is a technology used to produce Oilseed Rape hybrids with 6-10% higher yields

## Research & Development of Ogura technology: phases and costs in France



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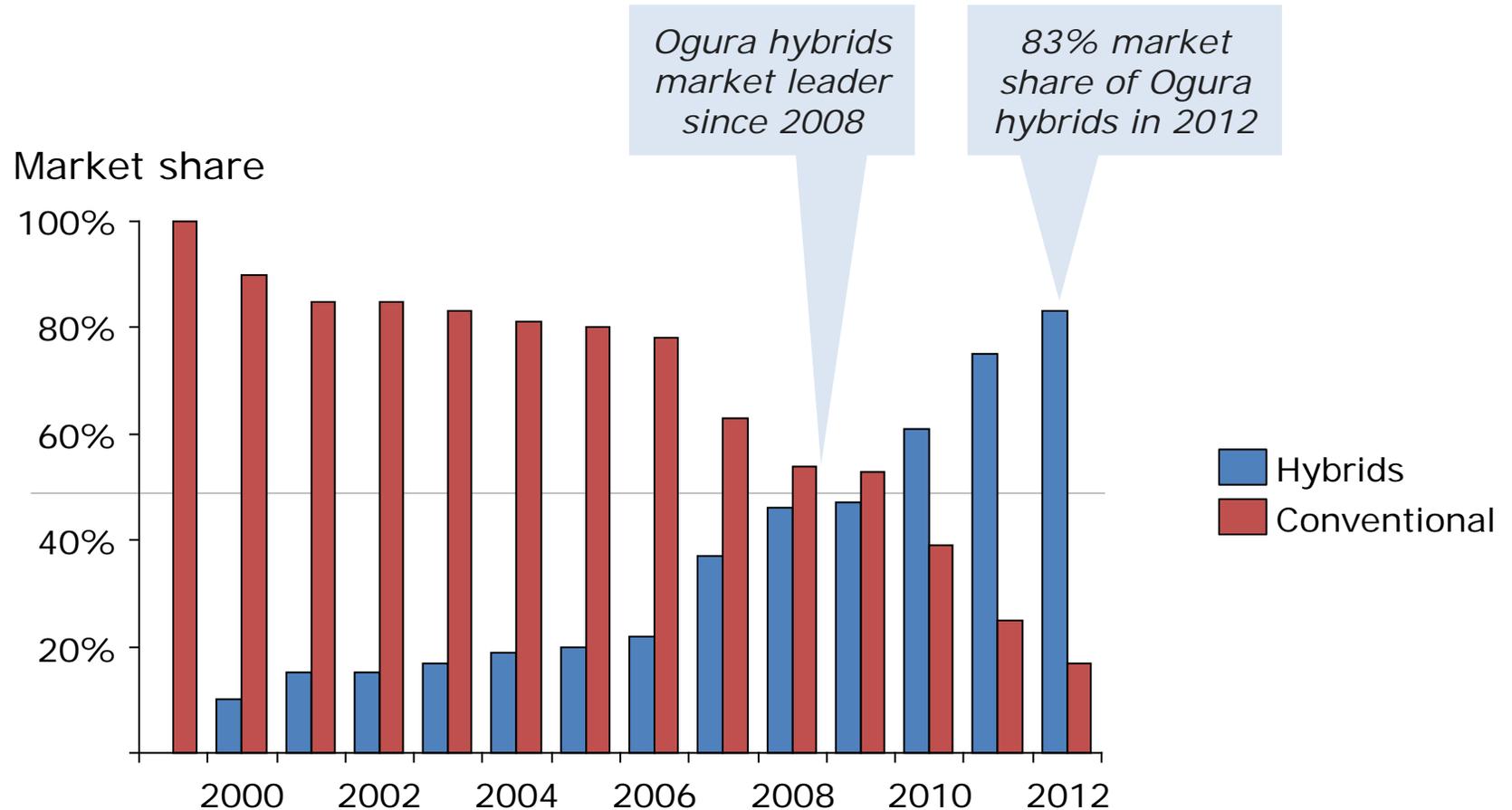
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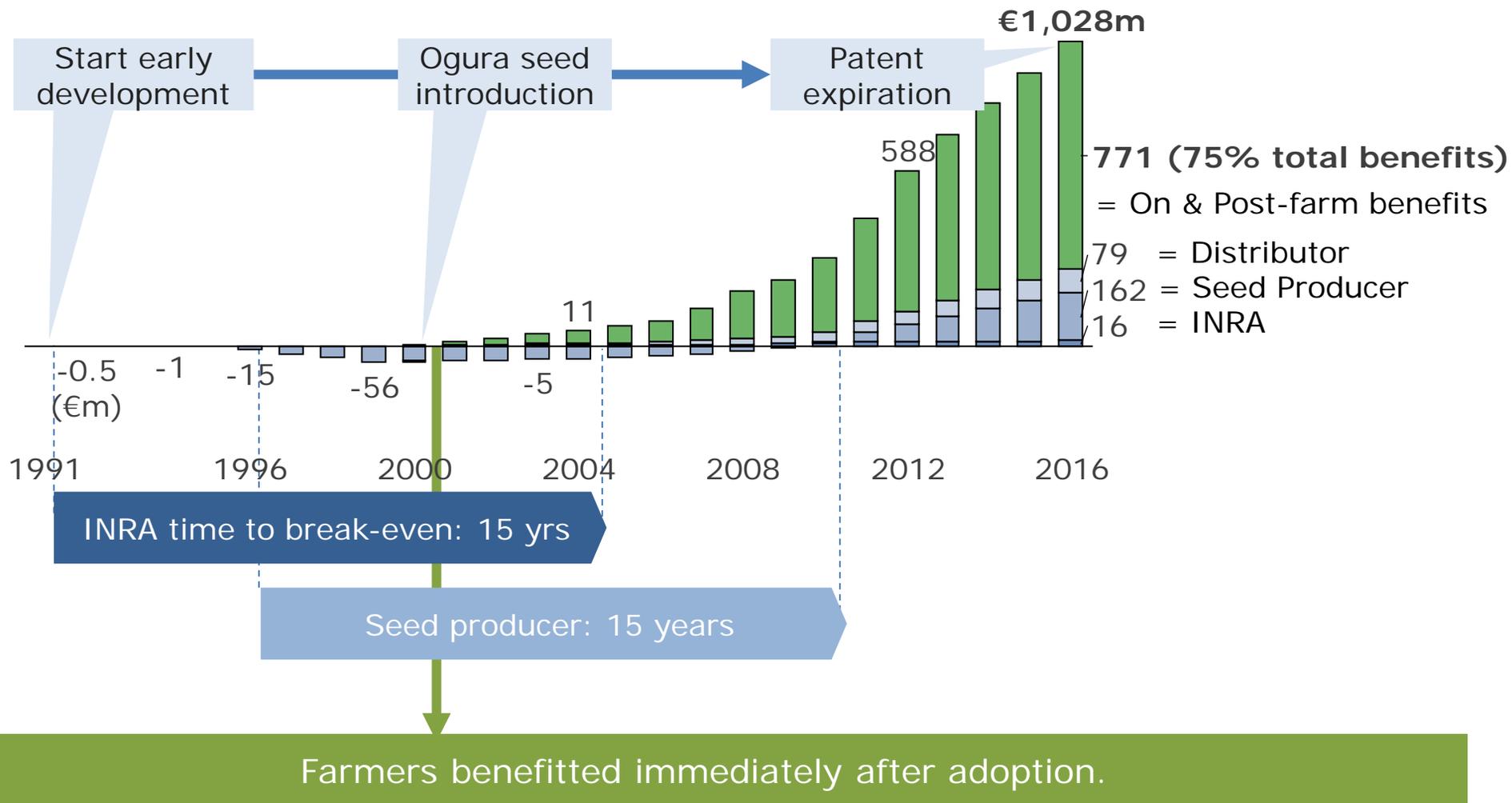
# Ogura hybrids obtained 83% market share in 2012 in France



Market conditions have been favourable for the uptake of Ogura because Oilseed Rape prices more than doubled over the last decade

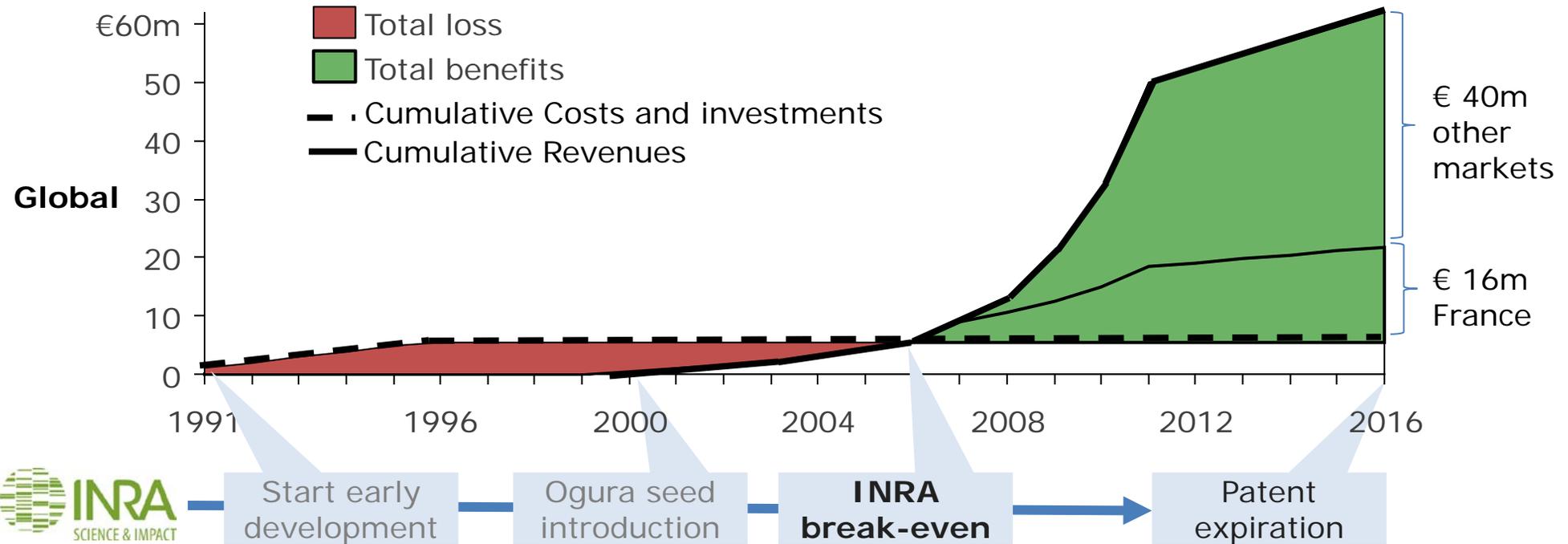
# 75% of benefits related to Ogura accrue to farmers and consumers

## Breakdown of economic benefits related to Ogura in France (1991-2016)



# IPR is essential to enable innovation as it provides the ability to recoup R&D investments

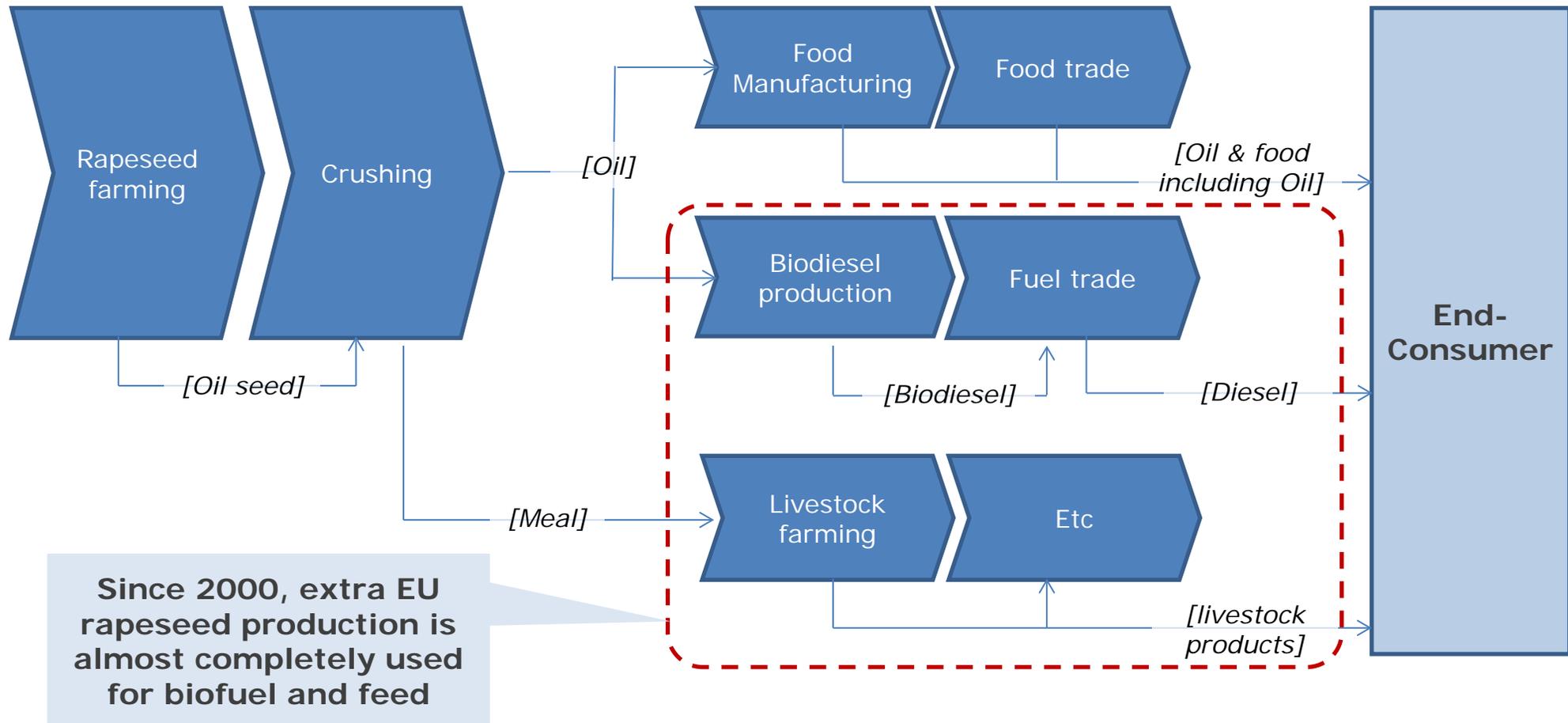
## Break-even of INRA



IPR enabled to INRA to recoup its investments after 15 years

# To what extent will the benefits travel down the value chain?

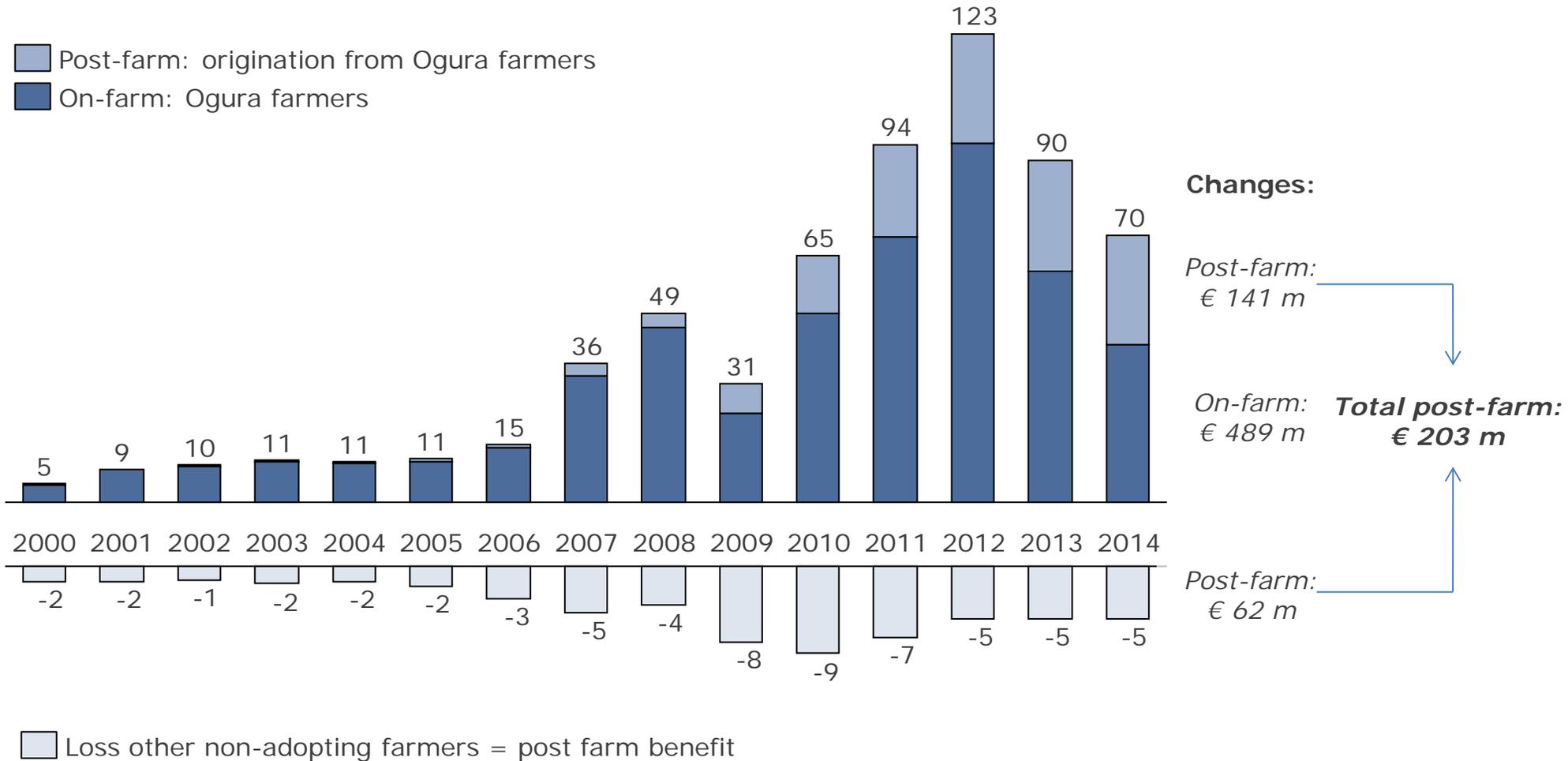
## Value chain(s) of OSR: actors and products per stage



More rapeseed will lower price levels of livestock products (e.g. milk, meat).

# From 2006 onwards, about €200m will shift to post-farm driven by lower prices

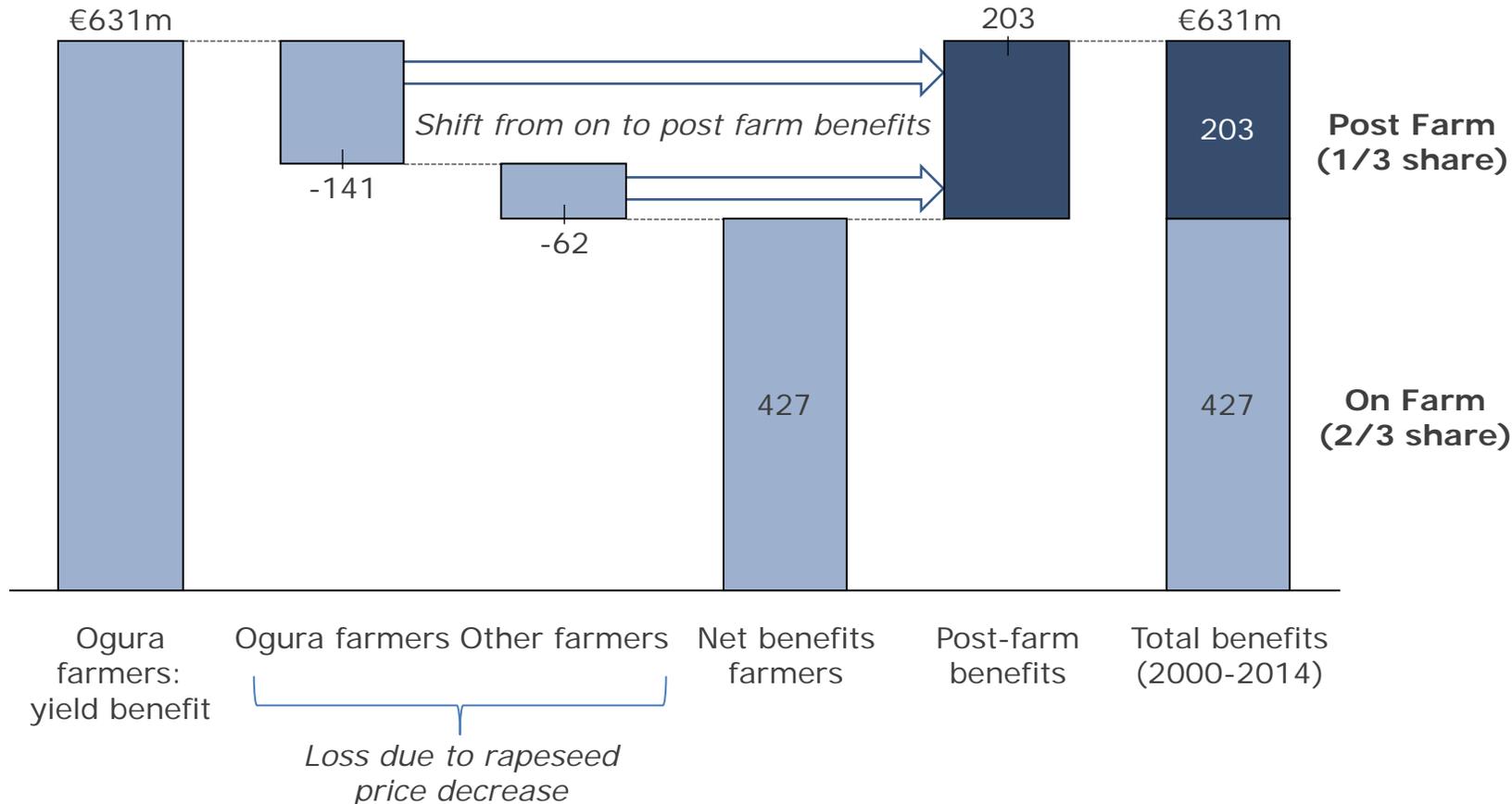
## On- and post-farm benefits related to Ogura in France (1991-2016)



# These are about 1/3 of the benefits created on-farm and most likely trickle down to the consumer

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## On- and post-farm benefits related to Ogura in France (1991-2016)



The EC food price monitoring reports indicate that a change in (processed) crop and feed prices typically travel down to the consumer with delay.

1. Also analyses from CEREOPA and LEI-Wageningen University indicate that a change in protein-rich feed cost will most likely result in a change in consumer prices for milk and meat.

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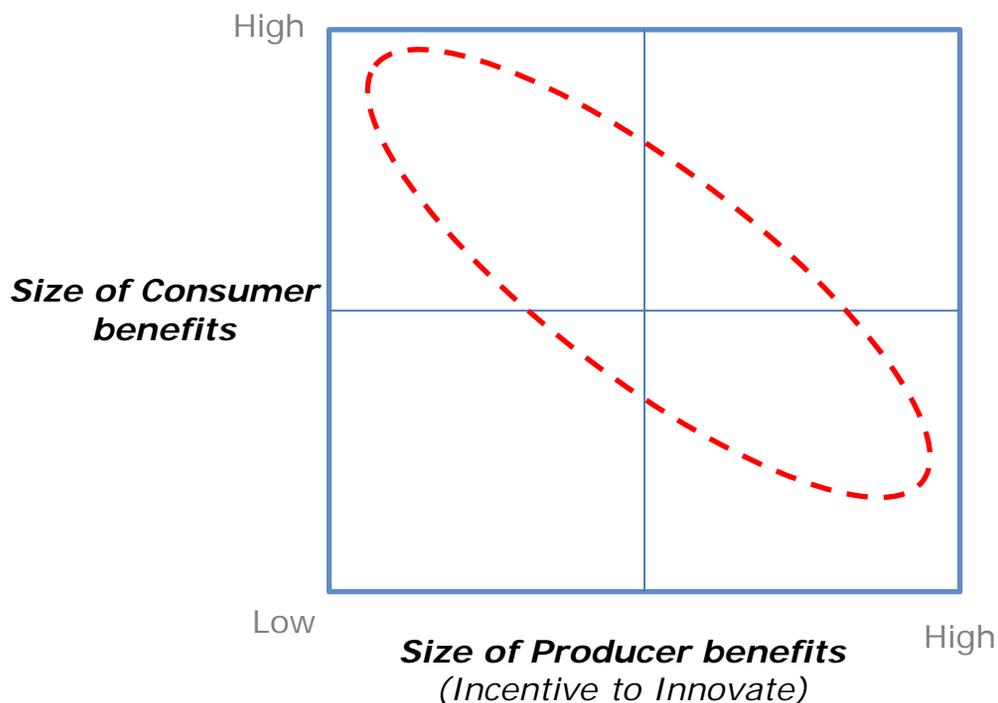
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# What if Ogura would have been developed under an alternative IPR regime?

## Framework to analyse trade-offs



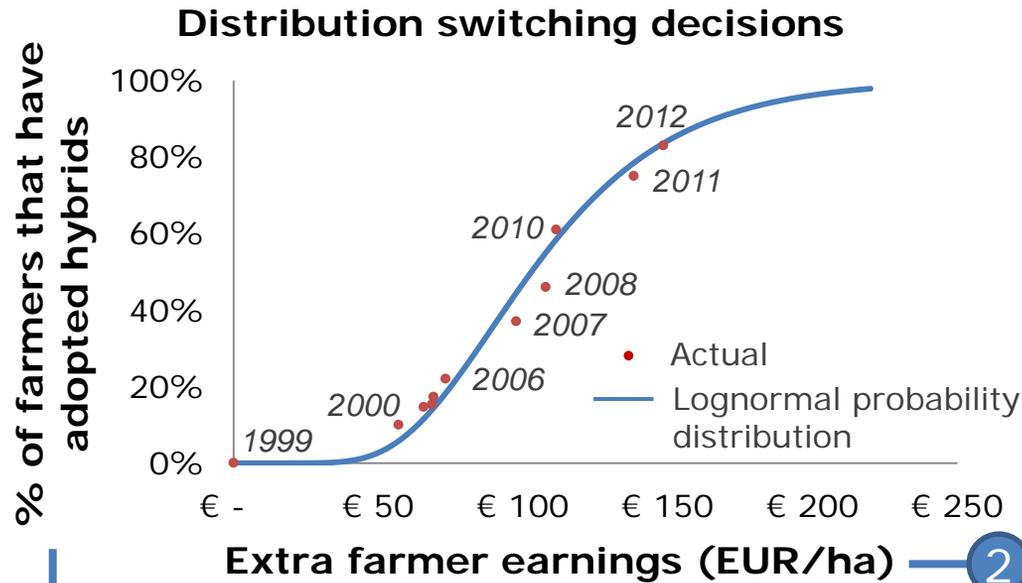
Actual situation: Non-exclusive patent use

Partitioning of benefits simulated for:

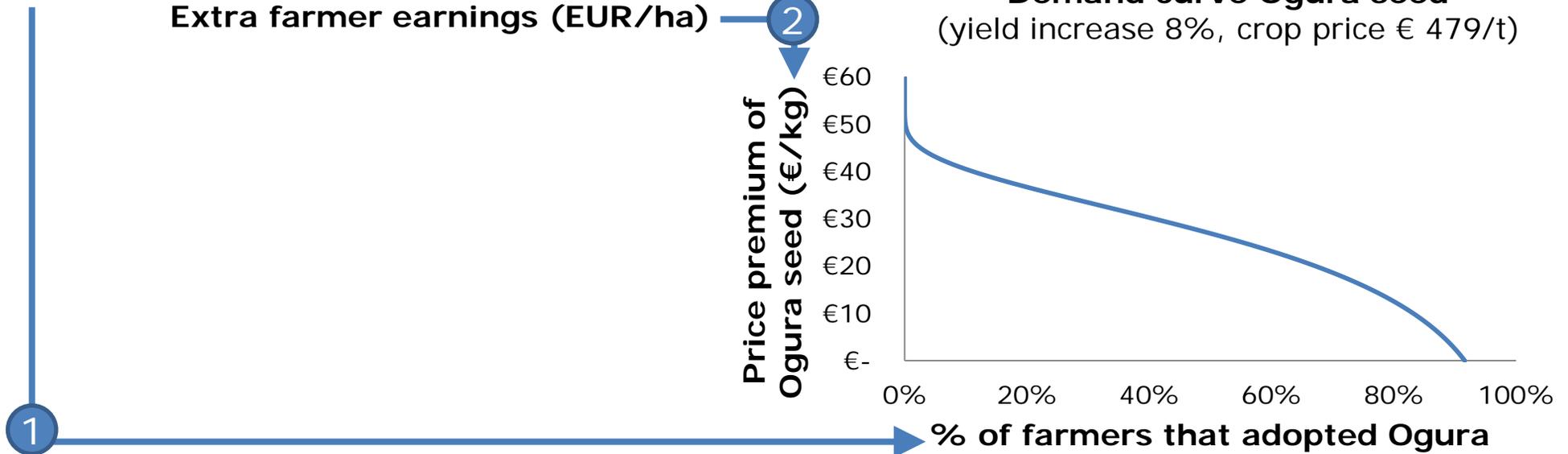
- Exclusive patent use
- No IPR

Actors in the value chain are grouped into *Producers* (INRA, seed producers) and *Consumers* (farmers, industry, trade, consumers)

# Demand curve for hybrid seed is derived from historical switching decisions of farmers

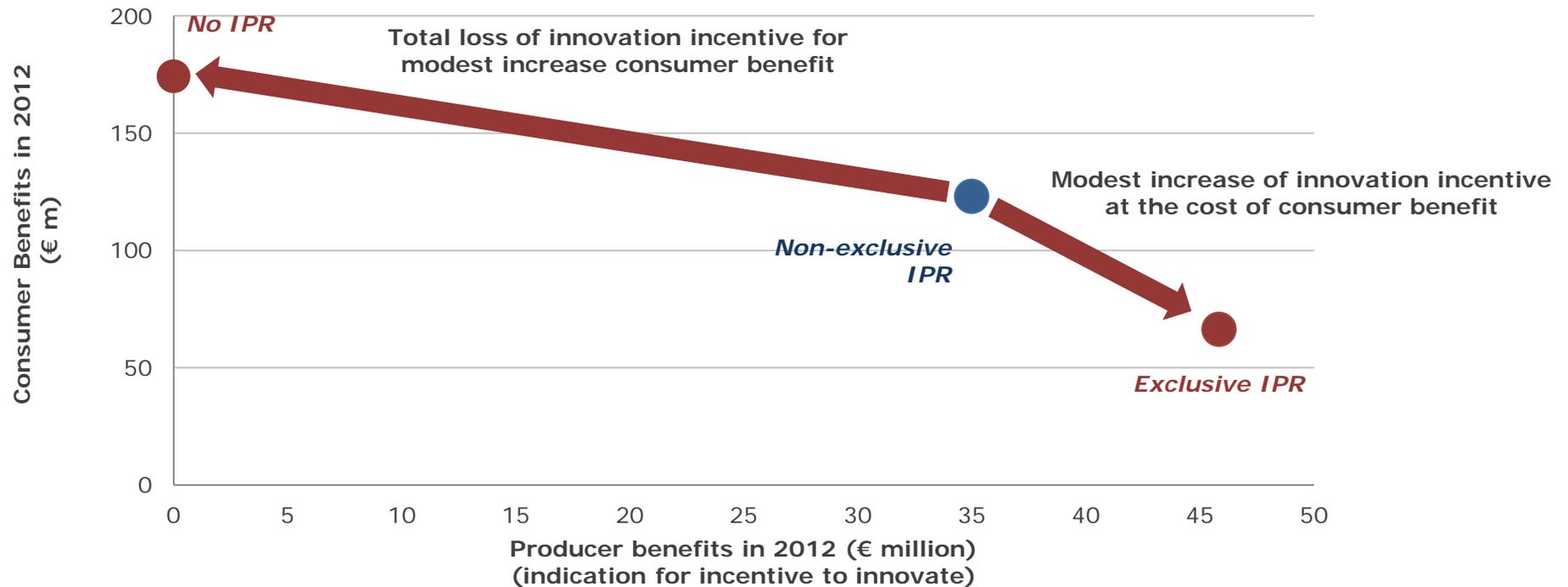


Switching decisions of farmers and crop trait quality allow **'prediction'** of demand curve and thus **analysis of optimal pricing** of patent holder



# IPR substantially increases the probability of innovations happening

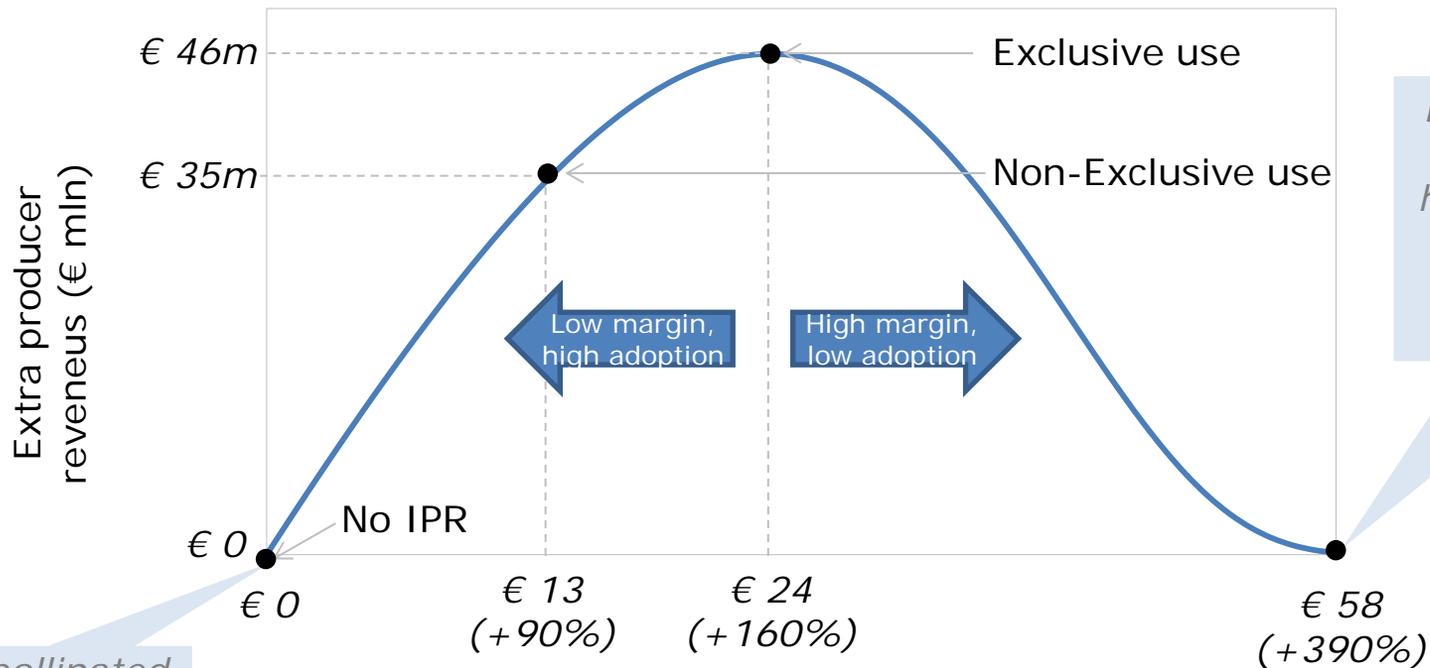
## Total Social Welfare of Ogura in 2012



Optimal IPR regime depends on the strength of technology and local market conditions

# Even under exclusive use, pricing power of the innovator is limited

## Optimal pricing of seed producer in 2012



Open-pollinated seed price is € 15/kg

Ogura seed premium price above open-pollinated seed price (€/kg)

Farmer break-even: At a price premium higher than € 58/kg, higher farmer costs will exceed higher farmer revenues

Under exclusive IPR use, market power is still restricted still due to competition from open-pollinated seeds and other local market conditions (e.g. crop price)

Note: seed costs are less than 5% of farmer production costs in France (CETIOM 2013)

## General lessons of the Ogura case

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