THE ASSESSMENT OF THE ECONOMIC IMPORTANCE OF AZOLES IN EUROPEAN AGRICULTURE: WHEAT CASE STUDY

Nomisma

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Objectives and methodology

The study evaluates the economic importance of azole active substances in European agriculture

- ***What would happen in the EU-27 markets if azoles were not used anymore?***

Methodological approach:

- case study: **wheat**
  based on the outcomes of ADAS and Horta agronomic studies
- **balance sheets** and **target indicators** calculation:
  - *demand satisfaction rate*
  - *self sufficiency*
- **scenario analysis**
- **sensitivity analysis**

Objectives and methodology

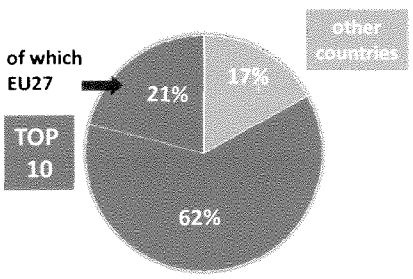
SCENARIO ANALYSIS: process of analysing possible future events by considering alternative possible outcomes and their implications

"Reference" scenario
estimated on the basis of **current trends** of the main wheat market drivers - yield, area, production, trade balance, consumption:
- in the SHORT TERM (2013)
- in the LONG TERM (2020)

"No azoles" scenarios
estimated supposing that **azoles are not used** any more
- SHORT TERM impact assessment (2013): loss of azoles
- LONG TERM impact assessment (2020): loss of azoles + fungicides resistance

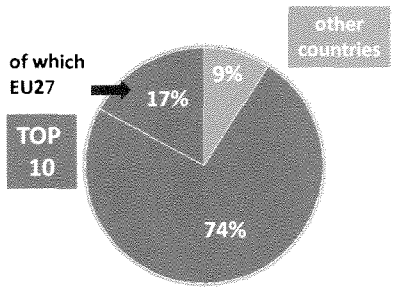
The importance of European wheat (2010)

WORLD PRODUCTION
(651.1 million tons)



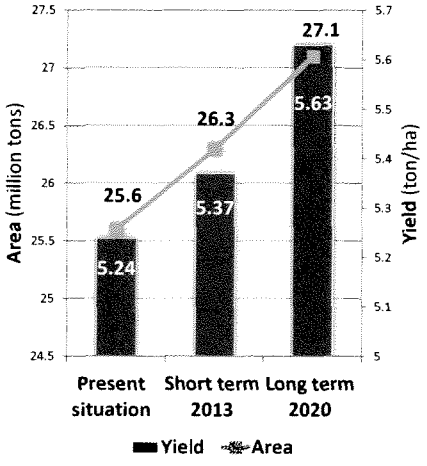
- **EU** is the **first world wheat producer**
- EU harvested are is not very large:
  - 11.6% of global area
- But it has a **very high productivity**:
  - EU yield: 5.3 (ton/ha)
  - world yield: 2.9 (ton/ha)

WORLD EXPORT
(132.9 million tons, 20% of production)



- **EU is the second largest exporter**:
  - 17% of world trade
- **Striking 5 years EU export increase**:
  - EU: +60%
  - world: +15%

REFERENCE SCENARIO: estimated production trends



- The reference scenario is estimated on the basis of current trends of the main market drivers, i.e. including azoles.
- **Area harvested** and yields are expected to increase significantly:
  - area: +2.4% (2013); +5.6% (2020)
  - yield: +2.5% (2013); +7.4% (2020)
- **Wheat production** is estimated to increase accordingly:
  - + 5.0% in the short term (2013)
  - +13.4% in the long term (2020)
- The **EU would maintain its present position in the world market** in terms of:
  - production
  - export
  - self sufficiency

Source: Nomisma elaborations on Eurostat, European Commission and FAO data

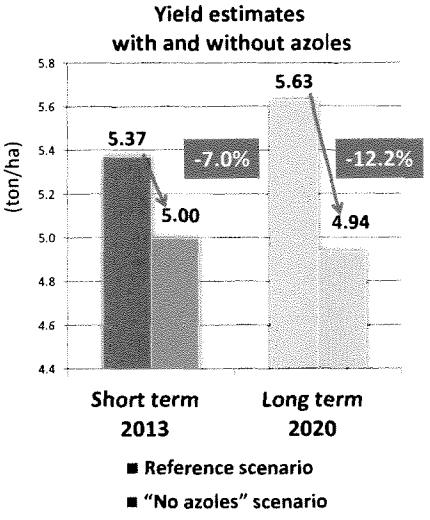
REFERENCE SCENARIO: EU balance sheet (million tons)

	Present situation (avg 2006-10)	Short term (2013)	Long term (2020)
Production (A)	134.4	141.1	152.4
Net trade (B)	10.8	9.1	12.6
Domestic availability (C=A-B) = **Internal Demand**	123.7	132.0	139.8
Demand satisfaction rate	100.0%	100.0%	100.0%
Self-sufficiency degree (A/C)	**108.7%**	**106.9%**	**109.0%**

Source: Nomisma elaborations on Eurostat, European Commission and FAO data

The azoles contribution to wheat productivity

- Recent **agronomic studies** (Blake et al., 2011; Salinari et al., 2011) show that fungicides, and namely azole compounds, contribute substantially to sustain wheat yield
- **If azoles are not used, crop productivity will decrease** due to the following reasons:
  - in the ***short term*** lower protection efficacy would increase **crop losses** at the field scale;
  - in the ***long term*** additional crop losses are expected due to the reduced options for managing **fungicide resistance**.



Source: Nomisma elaborations on ADAS and HORTA data

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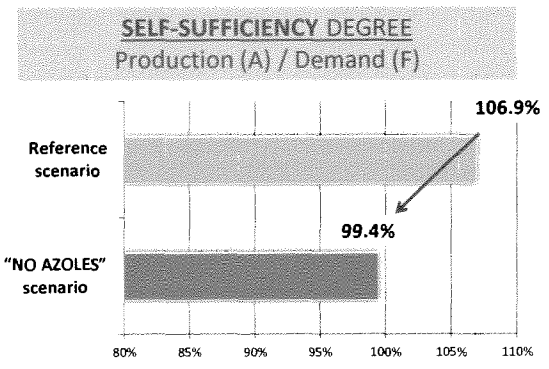
SHORT TERM impact (2013)

BALANCE SHEET 2013 (million tons)	Reference scenario	"No azoles" scenario
Production (**A**)	141.1	131.3
Domestic demand (F)	**132.0**	**132.0**



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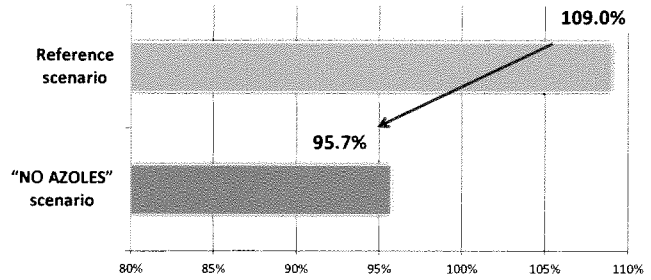
LONG TERM impact (2020)

BALANCE SHEET 2020 (million tons)	Reference scenario	"No azoles" scenario
Production (**A**)	152.4	133.8
Domestic demand (F)	**139.8**	**139.8**

SELF-SUFFICIENCY DEGREE
Production (A) / Demand (F)



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YIELD impact

- **Without the availability of azoles, production has been estimated to decrease significantly:**
  as compared with the reference scenario:
  - **9.8** million tons in the short term;
  - **18.6** million tons in the long term.

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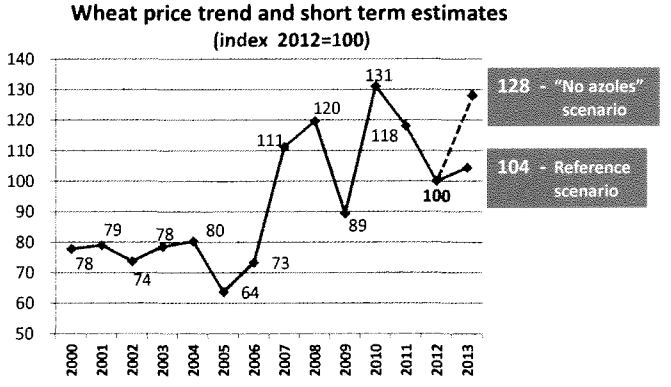
PRICE impact

- **High price levels** and increased price **volatility** became a major public concern because of their negative effects:
  - ✓ on importing countries and low-income consumers
  - ✓ on decision-making for buyers and sellers and on producers investment and innovation capability
- **Wheat prices are determined by supply-demand conditions**, both in the domestic and in the international markets:
  - over **a short time period**, supply shocks strongly affect price levels
  - in the **long run**, they are determined by structural trends that in turn affect production decisions

PRICE impact in the SHORT TERM

- The short-term **estimated price response to the loss of azoles** is noteworthy:
  - ***+28%*** as compared to current price (2012)
  - ***+23%*** as compared to the short term reference scenario (2013)



PRICE impact in the LONG TERM

- In the long term, **the main uncertainties relate to which extent agricultural production will be able to meet increasing demand** (both food and non-food)
- In the past, **technological progress** was faster than population and income growth, leading to a long-run relative decline in commodity prices
- **Tight market conditions** and **price pressures** in recent years due to:
  - strong world population growth
  - restrained yield improvement (technological progress, CAP, etc.)
- **Wheat prices are anticipated to be more volatile than in the past by 2020** and they are projected to average well above the historical mean (about 35% more than the 1990-2012 average).
- As a consequence, **the drop in wheat production ensuing the supposed loss of azoles** is expected to lead to both to:
  - an **increase in price levels**
  - and to **greater price volatility** over time.

Concluding remarks

- **The economic relevance of azoles in the European Union is considerable,** as their hypothetical loss would have **significant relapses on both the domestic market and international markets.**
- Without azoles there would be a drop in domestic production, leading to a **considerable deterioration of the EU wheat balance sheet**
- **The EU could cease to be a net exporter at world level and will become a net importer**, bringing into question the possibility of the other big wheat suppliers to be able to satisfy the increasing global demand.
- This would increase the current uncertainty concerning food security, and could particularly lead to **increases in both prices and price volatility**.

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