BASF
The Chemical Company

www.tuv.com
TÜV
Berlin
ID:5711150561

Validated
Eco-Efficiency-
Anaylsis method

Eco- Efficiency- Analysis

Mineral Feed

Dr. P. Saling, BASF AG, Eco-Efficiency Analysis

on behalf of Erbacher GmbH & Co. Betriebs KG

Ludwigshafen, March 2005

Ecological and economic efficiency of home mixed feed plus mineral feed in comparison with the standard feeding system in fattening pigs.

Josera.

Eco- Efficiency- Analysis:

Mixing locally grown grains plus mineral feed on the farm:

clearly more efficient than
the traditional feeding standard

Client: Erbacher Company

- Medium sized German family business
- over 200 employees
- For more than 60 years production and sale of mineral feed under the brand name **Josera**
- One of the leading mineral feed producers in Europe

Josera.

Motivation for the trial

- **Neutral examination of a mineral feed feeding system:**
  - Macroeconomic efficiency
  - Ecological sustainability
  - Economic value for the farmers and Josera
- **Guarantee that we apply a concept for the future**
  - Sales strategy, investments, R&D
  - Image
- **What can we do better in the future?**
- **Achieve „Political weight and importance“ for „Home-mixed grains plus mineral feed“**

Commissioned to carry out the trial: BASF

- Neutral company in such issues
- Excellent reputation for conducting complex eco-efficiency trials
- Tried and tested Management- Tool for own company and as a service for external clients

BASF
The Chemical Company

Eco-Efficiency Analysis

Critical Review: KTBL

- Independent research and advice institute
- High reputation in agricultural field

Conclusion: results sound and objective

Josera.

Eco-Efficiency Analysis:

- Assessment of the total economic value
  - Economic value for the farmer/ society
  - Ecological price for these gains
  - System comparison with a standard

Economic assumptions:

- Fattening of 1.000 pigs: 30 – 115 kg; feed conversion: 1 : 2,8; 750 g daily weight gain, 3,3 % losses
- Conventional practice mixes, comparative nutrient content
- Conventional trade prices

Definitions:

Home-mixed feed:

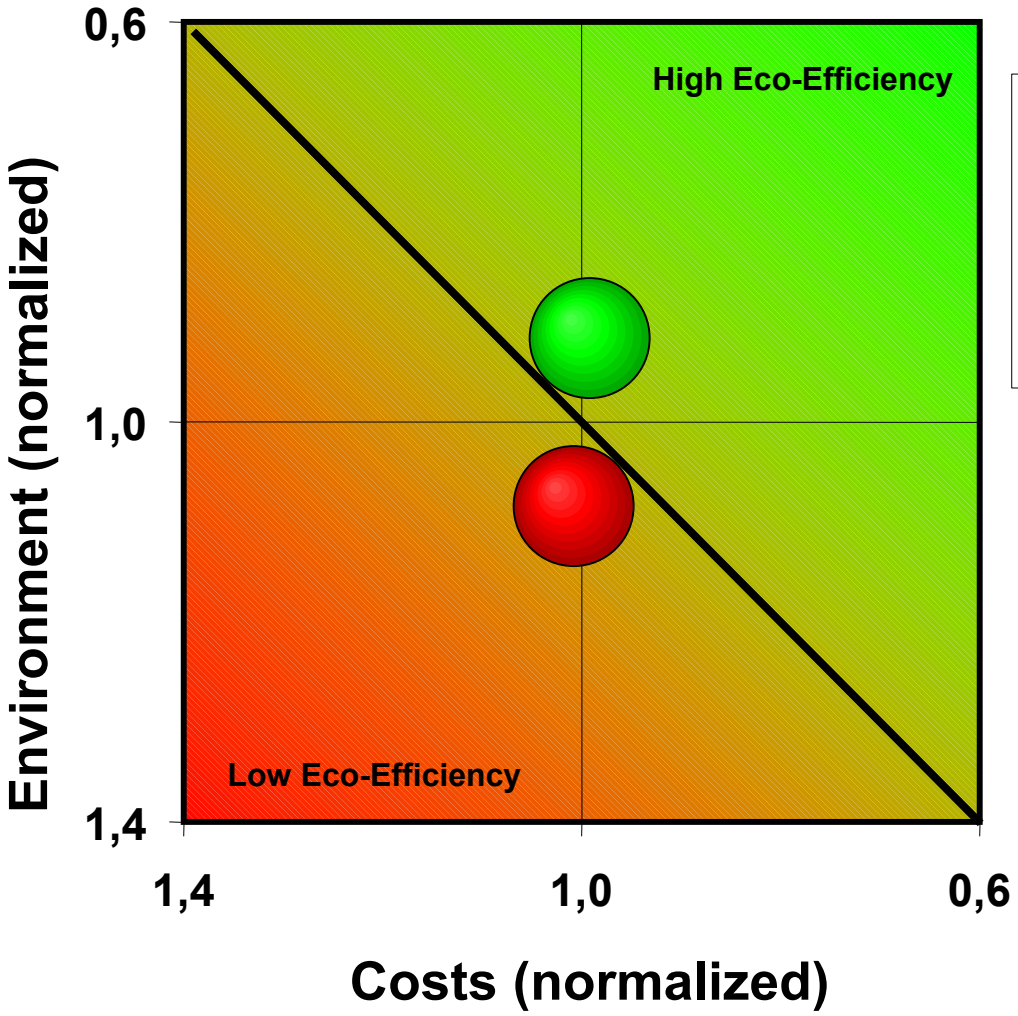
- Farmer feeds approx **80 % locally** grown feed, mainly grains
- Supplements with protein rich feedstuffs such as soy bean meal
- Adds about 3 % mineral feed
- He mixes all this directly on his farm

Mineral feed:

Feed supplement, contains:

- Minerals, vitamins, trace elements
- Agents such as probiotics, prebiotics and acids

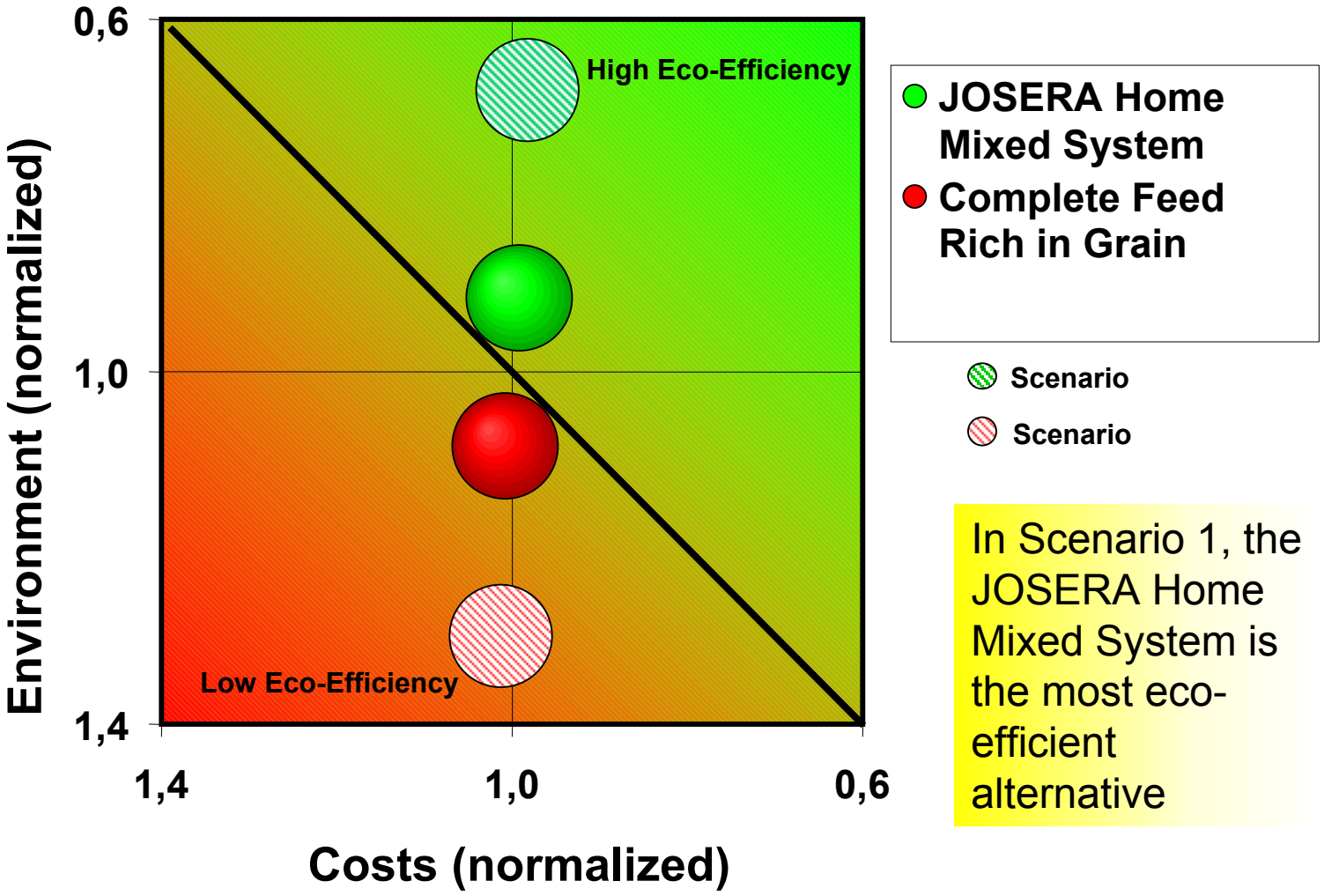
Results Base Case



- JOSERA Home Mixed System
- Complete Feed Rich in Grain

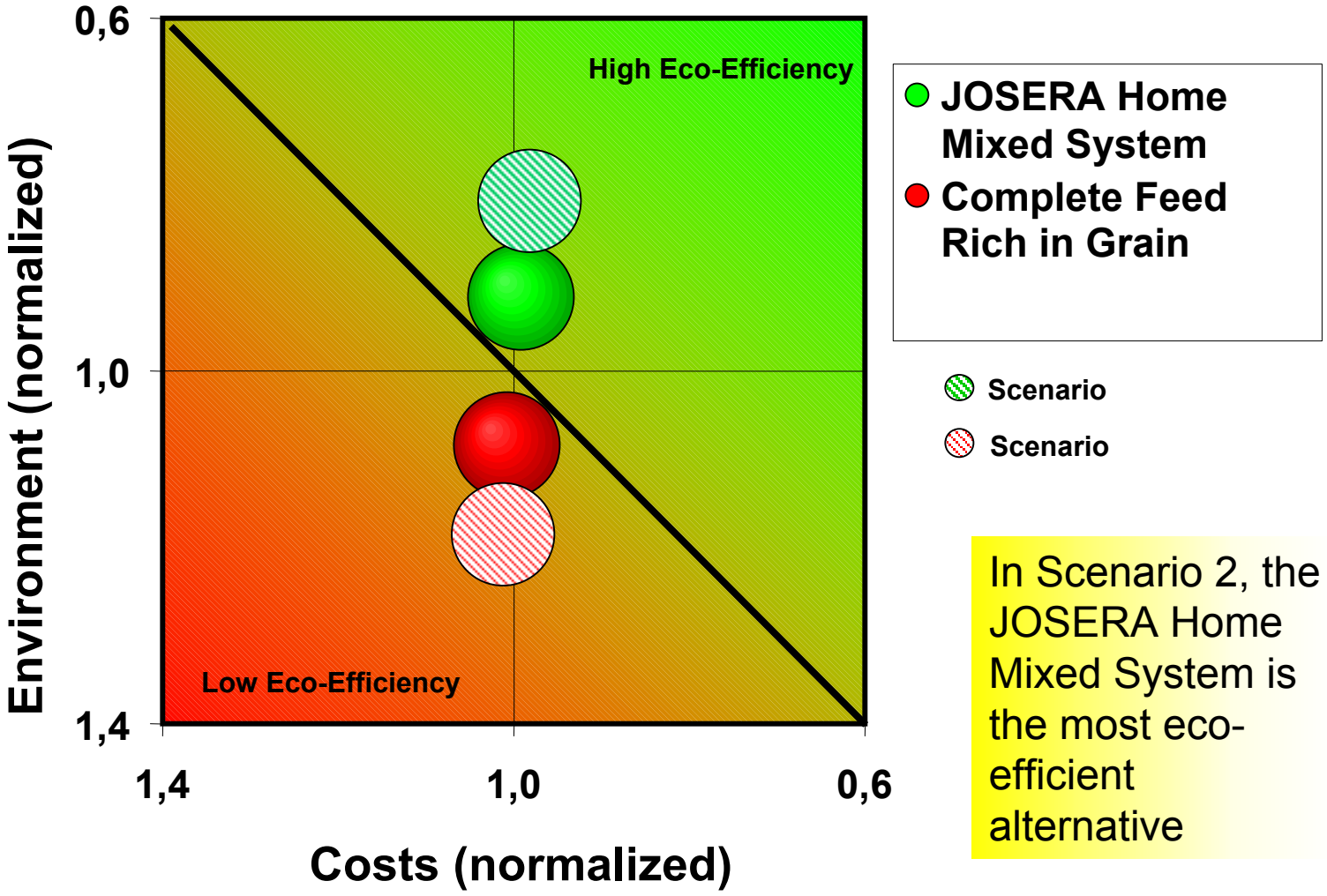
In Base case, the JOSERA Home Mixed System is the most eco-efficient alternative

Scenario 1: Far/close, wheat importation from Russia to the feed mill



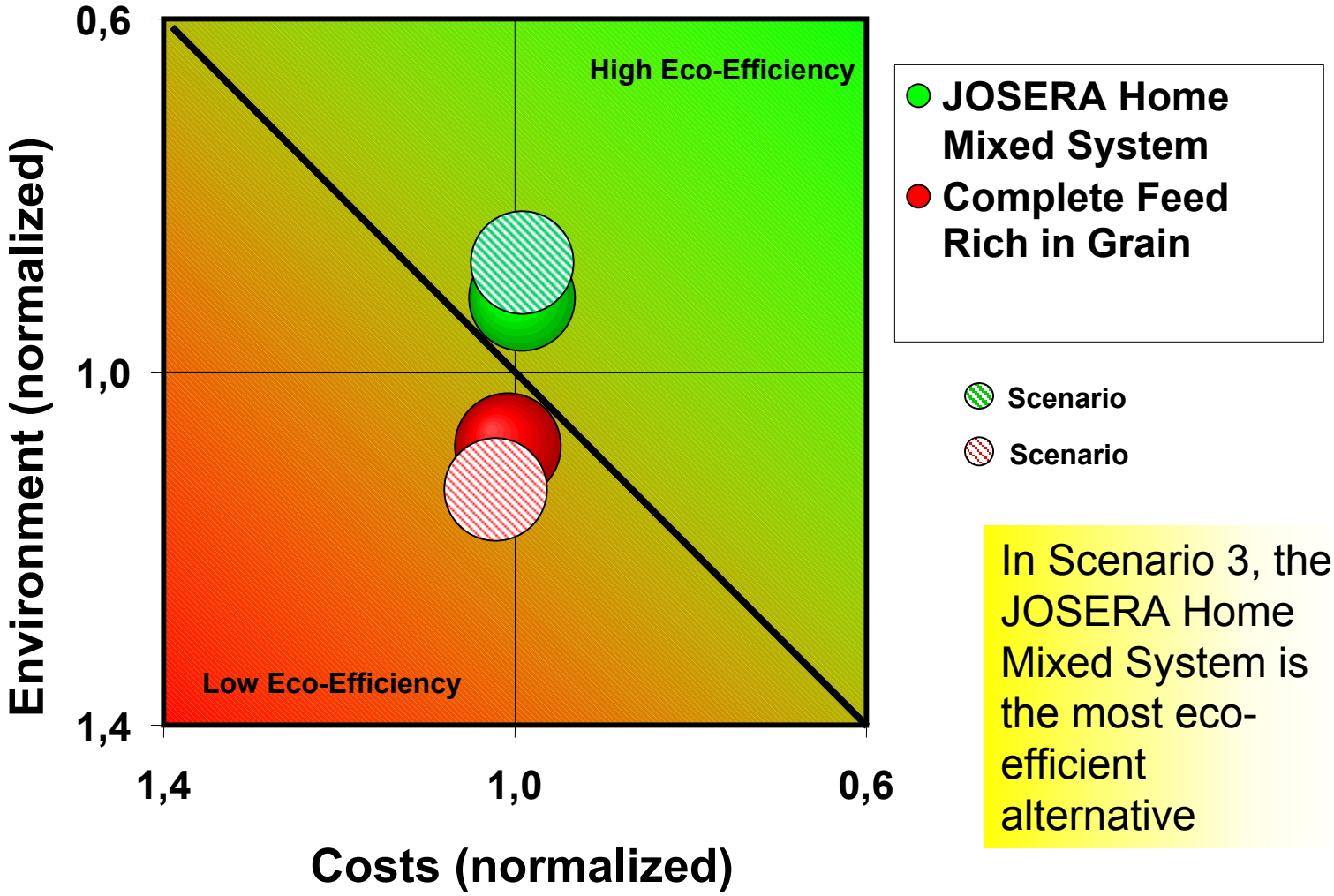
In Scenario 1, the JOSERA Home Mixed System is the most eco-efficient alternative

Scenario 2: Reduction of Phosphate emissions by 20 % with Josera home mixed system



In Scenario 2, the JOSERA Home Mixed System is the most eco-efficient alternative

Scenario 3: feed conversion rises from 2,8 to 2,7 with Josera home-mixed system



In Scenario 3, the JOSERA Home Mixed System is the most eco-efficient alternative

Important points:

- Reduction of transport
- Reduction of emissions
- Improved performance

Conclusions:

- Home mixed feed with mineral feed supplement:
  -> sustainable and eco-efficient

- Customer gains
- Transparency, positive in risk management
- Regional circulation of goods
- Emotional aspect - home mixed feedstuff

- **Home-mixed feed with mineral feed:**
  -> a feeding system for the future

Conclusions (Suppliers)

- minerals and trace elements with a high availability
- minerals and trace elements with the potential to generate a higher economic value:
  - to the supplier
  - to the farmer
  - to the feed industry

-> especially the mineral feed producers are adequate partners to promote innovative solutions

Conclusions (EMFEMA)

To give the idea of home mixed feed with mineral feed the adequate and necessary political weight on the „European stage“

Thank you for your time

and

Happy Birthday EMFEMA !

Josera.