

The burden of folate deficiency and a micro/macro level evaluation of folate biofortified rice. Results from a series of ex-ante socio-economic studies in China.

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Ex-ante socio-economic research is considered a crucial factor to successfully introduce novel, controversial goods, such as GM foods. This research compiles different studies that investigate ex-ante the potential of folate biofortified rice (FBR). From a policy point of view, economic evaluation is needed to assess whether FBR as a potential health intervention is worthwhile to undertake, while knowledge of its demand is needed to evaluate the market potential of FBR as a controversial GM food crop. Therefore, emphasis is put on three different lines of inquiry, i.e. acceptance, willingness-to-pay (WTP) and cost-effectiveness, which can be categorized based on the level of analysis, micro versus macro. While the former two are examined at the individual consumer level (micro), the macro-level looks at the potential cost-effectiveness for a society as a whole (macro). Also the research location differs according to this level: at micro-level, the consumer studies are conducted in a high-risk region, Shanxi Province, while at macro-level FBR is evaluated from the point of view of the broad society, i.e. China and its regions.

Both micro-level studies lend support for a substantial market for FBR in target regions. Shanxi consumers generally accept FBR (62 %) and are even prepared to pay 34 % more than for regular rice. The health impact study further supports FBR as a valuable micronutrient strategy. When implemented in China, FBR could reduce 20 to 60 % of the burden of folate deficiency. Moreover, as it would cost between US\$ 21.4 and US\$ 64.2 to save a DALY, FBR is considered a highly cost-effective health intervention.

Despite its potential, both at micro and macro level, biofortification alone will not be sufficient to completely eradicate the folate burden.

Scientific abstract (1785 characters)

Question:

Ex-ante socio-economic research is considered a crucial factor to successfully introduce novel, controversial goods, such as GM foods. This research compiles different studies that investigate ex-ante the potential of folate biofortified rice (FBR). From a policy point of view, an economic evaluation is crucial to assess whether FBR as a potential health intervention is worthwhile to undertake, while knowledge of its demand is needed to evaluate the market potential of FBR as a controversial GM food crop. Therefore, emphasis is put on three different lines of inquiry, i.e. acceptance, willingness-to-pay (WTP) and cost-effectiveness. While the former two are examined at the individual consumer level (micro), the macro-level looks at the potential cost-effectiveness for a society as a whole (macro).

Methods:

At micro-level, the consumer studies (standardized survey, experimental auctions) are conducted in a high-risk region, i.e. Shanxi Province, while at macro-level FBR is evaluated from the point of view of the broad society, i.e. China and its regions, through the application of the DALY approach to cost-effectiveness analysis

Results and conclusions:

Both micro-level studies lend support for a substantial market for FBR in target regions. Shanxi consumers generally accept FBR (62 %) and are even prepared to pay 34 % more than for regular rice. The health impact study further supports FBR as a valuable micronutrient strategy. When implemented in China, FBR could reduce 20 to 60 % of the burden of folate deficiency. Moreover, as it would cost between US\$ 21.4 and US\$ 64.2 to save a DALY, FBR is considered a highly cost-effective health intervention.

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