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The acceptance of GMO Seeds in German agriculture: empirical results

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The acceptance of GMO Seeds in German agriculture: empirical results

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Summary

Genetic engineering – hardly any other issue has been discussed so intensively along the value chain of food industry and agriculture in the past few months. Although GMO seeds are more commonly used in the world-wide agriculture European countries and in particular farmers in Germany are more reserved towards this topic (agricultural initiatives against the GMO seed report that already 5% of the agricultural acreage in Germany is announced as GMO-free zones[1]). Why do farmers reject to cultivate GMO seeds? The scientific discussion mainly addresses consumer's acceptance of GMO-Food (e. g. LOUREIRO / HINE (2001), BAKER / BURNHAM (2002), BAKER / MAZZOCCO (2002)), there are hardly any cognitions about farmer's acceptance.

With the objective of closing this research gap and as a neutral contribution to the discussion about agricultural genetic engineering within the German agriculture we interviewed 370 German farmers about their attitudes to GMO seeds. The results of the study exhibit indications about the acceptance and the probability of utilization of GMO seeds. Furthermore the outcome evinces which factors can explain farmer's attitudes to agricultural genetic engineering. In addition the study gives indications about the willingness to pay for GMO seeds.

The theoretical funding for the empirical study arises from the social psychology by using the Theory of Planned Behavior (TPB) of AJZEN (1985) to predict farmers' intentions about GMO seeds. Transferring the considerations of Theory of Planned Behavior, we developed the following construct to predict the adoption of GMO.

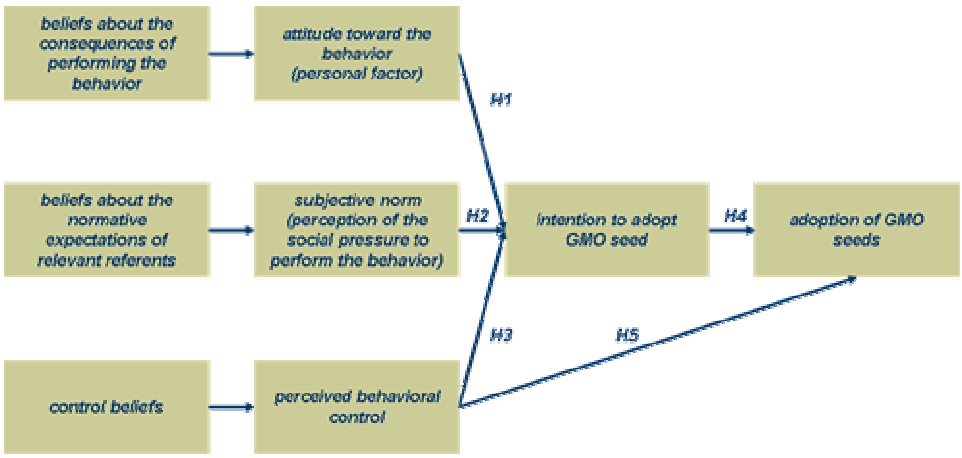


Figure 1: Theory of Planned Behaviour

[1] Own calculations based on http://www.faire-nachbarschaft.de/ and http://www.situationsbericht.de/.

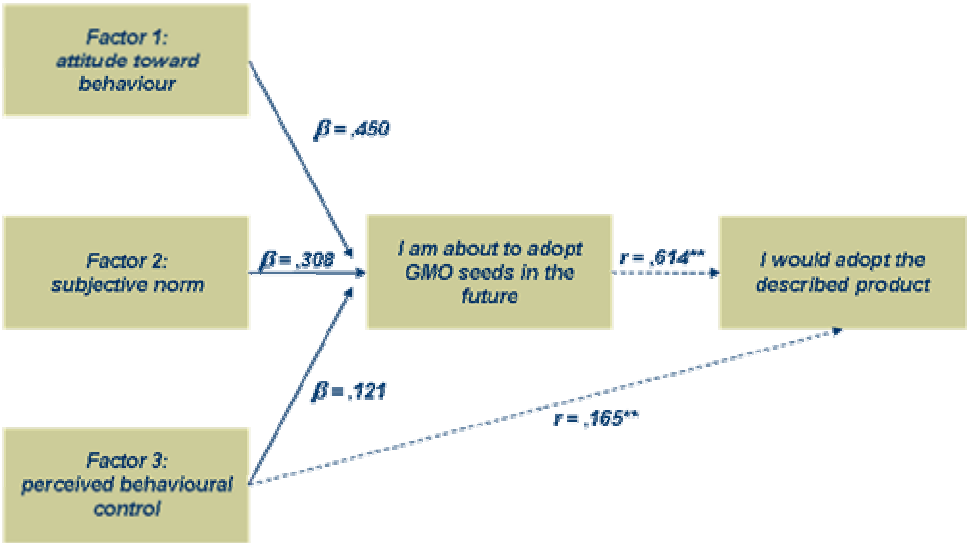
The reached sample manages averagely an acreage size of 228 hectares (σ 491.93), the answering farmers have an average age of 43.97 years (σ 12.38). Doubtless the sample is not representative, however, it allows interesting conclusions on the research question from the viewpoint of larger farms in north-western Germany. In the following a brief view on the most important results of the study is given.
The statements about the attitude towards agricultural genetic engineering show a little drift to a positive opinion. However, the presumption of adoption estimated rather low. The interviewed farmers reject the statement *I am about to adopt GMO seeds in the future*. If a specific product is presented to the farmers and the probability of adoption tested, a quite positive answering arises. Herewith the farmers show a partly inconsistent attitude. The high standard deviations, particularly with the concrete question of adoptions, are another record of the different positions within the agriculture.

Item	n	Mean	Std. deviation
What do you generally think about genetic engineering in the agriculture?	369	0,22[1]	0,956
I am about to adopt GMO seeds in the future.	369	-0,40[1]	1,074
I would adopt the described product (Bt corn or roundup-ready sugar beet).	320	0,36[1]	1,206
How sure are you with your attitude on genetic engineering in the agriculture?	368	0,45[2]	0,924

[1] on a scale from +2 (“I strongly agree”) to -2 (“I strongly disagree”)
[2] on a scale from +2 (“I am very sure”) to -2 (“I am very uncertain”)

Table 1: Attitude towards agricultural genetic engineering

In order to specify the results, factor- and regression-analysis were calculated to have a first estimation of the Theory of Planned Behaviour related to the adoption of GMO seeds. The results show that the factors “attitude toward behaviour” and “subjective norm” have a broad impact on the intention to work with GMO seeds in the future. The factor “perceived behavioural control” has only a small influence on the intention.



** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed).
β = standardised β coefficient; r = coefficient of correlation

Figure 2: Calculation of the Theory of Planned Behaviour

It is demanding to identify factors which influence the intention and behaviour of German farmer's towards GMO seeds. Thereby the Theory of planned behaviour is not absolute suitable to explain the adoption of GMO seeds. Our calculations point out, that the individual opinion on agricultural genetic engineering and the subjective are important factors of influence. Surprisingly, the perceived behavioural control (e. g. the perceived risk through unclear liability rules) has no capacious influence on the attitude to adopt GMO seeds. In the next step the data set must be used to evaluate an entire model to explain farmer's intention to agricultural genetic engineering.

References

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