

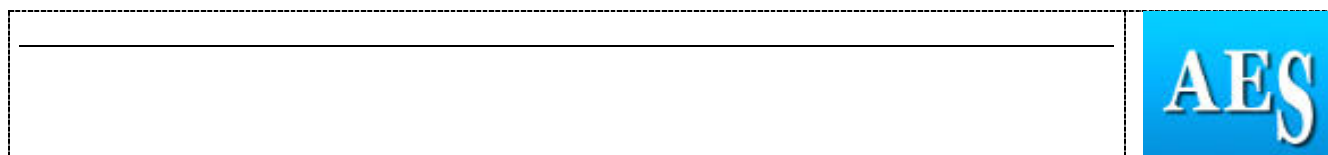
## Guidelines for Contributed Papers for the AES Annual Conference

Submission in the Contributed Paper category can be either in the form of an extended abstract or a full paper – in each case, please, follow these guidelines below and upload the pdf version of your document when submitting the application.

1. Extended abstract: follow the template in Annex 1.
2. Full paper: follow the guidelines for the Journal of Agricultural Economics (with length not exceeding 7000 words). To standardise submissions use the title page shown in Annex 2.

Accepted Contributed Papers will be made available to delegates through the AES website after the conference. In addition, papers from the conference are normally archived on the AgEcon Search repository at the University of Minnesota. If you would rather not have your paper included on AgEcon Search, please let us know.

*Vera Eory, AES Programme Secretary, 2016*



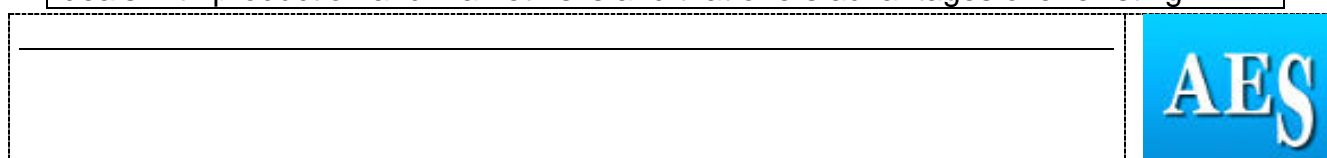
## Annex 1 – Extended abstract for Contributed Paper session

<b>Paper Title</b>	<b>Elements of an index-based margin insurance - an application to grain production in Austria</b>
--------------------	--

**Contributed Paper abstract prepared for presentation at the 91<sup>st</sup> Annual Conference of the Agricultural Economics Society, Royal Dublin Society in Dublin, Ireland**

**24 - 26 April 2016**

<b>Abstract</b>	<i>200 words max</i>
<p>Various types of insurance products are on the market to protect against production losses and farmers may use financial market instruments to hedge price risks. An insurance that covers losses of both input and output prices was recently introduced in the U.S. We develop this concept further by proposing a prototype of an index-based margin insurance which accounts for both production risks and price risks (input and output prices). The prototype is based on standardised gross margin time series for specific activities. It accounts for revenue, variable costs by cost item, various insurance levels, gross margin, indemnities if the gross margin falls short of a determined level, the fair premium as well as administrative costs in a given multi-annual period and in € per hectare. Using Austrian data, we identify the steps which are necessary to accomplish a market-ready insurance product (e.g. data validation, defining the details of the sub-indexes and the premium calculation, evaluating acceptance on the market prior to its launch). Farmers could benefit from such a margin insurance since production and price risks would be covered in one scheme, thus reducing opportunity costs.</p>	
<b>Keywords</b>	natural hazards, price risk, margin insurance
<b>JEL Code</b>	Q10, Q14 see: <a href="http://www.aeaweb.org/jel/guide/jel.php?class=Q">www.aeaweb.org/jel/guide/jel.php?class=Q</a> )
<b>Introduction</b>	<i>100 – 250 words</i>
<p>Income volatility is a major concern of farmers. Volatile incomes are the result of volatile production flows and volatile prices. In most EU Member States farmers can buy insurance products that cover production losses due to natural hazards like hail and frost. For several products, farmers can hedge price risks by using financial market instruments like futures or options. Representatives of farmers, however, argue that a single insurance product that covers both production and market risks is needed. Such a product would reduce transaction cost compared to the current situation where additional contracts are necessary to hedge price risks. A revenue insurance would already be an improvement compared to the current situation but farmers are mainly concerned about profits and incomes and less about yields or revenues. Therefore, an ideal insurance product would cover not only production risk and producer price risks but also price risks of inputs such as fuel and fertiliser.</p> <p>In order to evaluate the feasibility of such a solution, a prototype was developed for the most important activities and production regions in Austria. The purpose is to identify the elements that are necessary for developing a marketable product that deals with production and market risks and that offers advantages over existing</p>	



approaches. Special attention is given to designing a product that minimises the problems related to adverse selection, moral hazard and administrative burden.

### Methodology

100 – 250 words

The proposed insurance is based on gross margins (= revenue – costs) since farmers are familiar with the concept and a similar product was introduced in the most recent U.S. farm bill (Orden and Zulauf, 2014). Farm advisory services work with sophisticated online tools for calculating activity-specific gross margins (e.g. AWI, 2016; Rural Business Research, 2016). To calculate the insurance premiums from gross margin time series, one needs to know the volatility of input prices, output prices and yields as well as the cost structure. Price volatility can be observed on the market and detailed statistics are available. Production risk is well known to the incumbent insurance companies. The INCAP (index-based costs of agricultural production) data set informs about the cost structure of all relevant production activities in various settings of the Austrian agricultural sector (Heinschink et al., 2016a,b). As an engineering data set, the quality and validity of INCAP is scrutinised using data from a major production region collected from farmers participating in working groups (Heinschink et al., 2016a).

Calculations like those reported in INCAP may be used as the basis for identifying the specifics of the margin-insurance for all relevant production activities. The prototype accounts for revenue, variable costs by cost item, various insurance levels (i.e. guaranteed revenue per year, depending on premium paid), gross margin and losses generated without insurance, gross margin generated with insurance, fair premium and administrative costs in a given multi-annual period and in € per hectare.

### Results

100 – 250 words

To exemplify an ex-post calculation of an index-based margin insurance, we present results for a margin insurance for wheat in Austria. It guarantees a minimum margin of 120 € per hectare. In Figure 1, all types of wheat are aggregated and numbers represent weighted averages. The upper (solid) line is the average price of wheat in Austria over a period of 16 years. The lower (short-) dashed line indicates the standard production costs (i.e. seed, fertiliser, machinery, energy, plant protection). The light-coloured area, assuming positive and negative values, represents the margin prior to deducting premiums for the 'margin insurance'. The dark area, capped at the determined level of insurance, represents the insurance payout that accrue when the margins fall below 120 €/ha. In order to keep things simple, the assumption was made that a public fund is sponsoring the insurance by covering administrative costs and re-insurance premiums (together approximately 20%). The premium accrued during the chosen period (indicated by the long-dashed line) therefore equals the indemnities that are used to compensate any shortfall of margins below 120 € per hectare. If the government in addition fully supported the

premium, the total cost would be 59 € per hectare in this example. For comparison, the average direct payment in Austria per hectare of utilised agricultural land was 258 € in 2015. It is important to bear in mind trends in output and input prices as well as covariance between the time series.

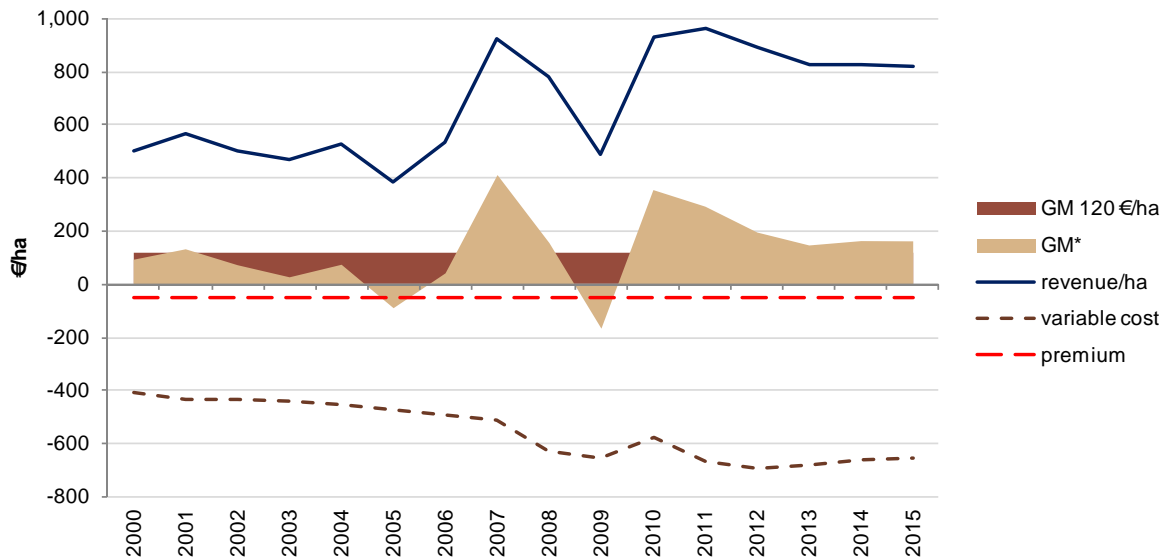


Fig. 1: An ex-post calculation of an index-based margin insurance scheme (€/ha) with minimum margin of 120 € hectare.

Remark: The assumption was made that administrative costs and re-insurance are covered by a farm programme. If the government in addition fully supported the premium, the total cost would be 59 € per hectare. The average direct payment in Austria per hectare utilised agricultural land was 258 € in 2015.

Source: Own figure

## Discussion and Conclusion

100 – 250 words

This extended abstract presents core elements of a new insurance product that allows farmers to insure against production risks and price risk of both inputs and outputs. Further steps are necessary to accomplish a market-ready insurance product: following the data validation, it will be necessary to define the details of the sub-indexes that enter the formula, the details of premium calculation as well as the specification of both the agricultural product and the insurance product to be placed on the market. Evaluating acceptance on the market is probably the most important step before its launch.

A noteworthy advantage of the suggested margin insurance is that it could easily be combined with any other risk management tools, thus allowing farmers to fine-tune their risk mitigating measures.

An important aspect not touched in this paper is the legal one. Relevant questions

include: Does the national or EU legislation limit the scope of detail or any variant of implementation? Will public support be granted and, if so, would this support be in conformity with WTO commitments? Given the fact that a very similar scheme is operated in the USA, there is likely that conformity is given.

The example shown in this abstract is based on the assumption that, apart from yield increases, technology does not change. Such an assumption may be justified for some short periods but is certainly inadequate for longer ones. In order to account for technological change it will be necessary to make technical parameters explicit and to explore their change over time.

## References

- AWI (Federal Institute of Agricultural Economics), 2016, IDB Deckungsbeiträge und Kalkulationsdaten (Internet gross margins and data). URL: <http://www.awi.bmlfuw.gv.at/idb/default.html> (01.07.2016).
- Heinschink, K., Sinabell, F., Lembacher, F., 2016a, Crop production costs in Austria: Validation of simulated results using farm observations. 26th Annual Conference of the Austrian Society of Agricultural Economics, Vienna, Austria.
- Heinschink, K., Sinabell, F., Tribl, C., 2016b, Index-based Costs of Agricultural Production' (INCAP) – a new risk analysis tool for Austria. Paper presented at the Agricultural Economics Society Annual Conference 2016, 4 April 2016, University of Warwick, England.
- Orden, D., Zulauf, C., 2015, Political Economy of the 2014 Farm Bill. American Journal of Agricultural Economics 97 (5): 1298-1311.
- Rural Business Research, 2016, Farm Business Survey – Enterprise Gross Margins. URL: <http://www.farmbusinesssurvey.co.uk/benchmarking/Default.aspx?module=GrossMargins> (11.11.2016).

## Annex 2 – Front page of full paper for Contributed Paper session

<b>Paper Title</b>	21T
--------------------	-----

Contributed Paper prepared for presentation at the 91<sup>st</sup> Annual Conference of the Agricultural Economics Society, Royal Dublin Society in Dublin, Ireland

24 - 26 April 2016

<b>Abstract</b>	<i>200 words max</i>
21T	
<b>Keywords</b>	21T
<b>JEL Code</b>	21T see: <a href="http://www.aeaweb.org/jel/guide/jel.php?class=Q">www.aeaweb.org/jel/guide/jel.php?class=Q</a> )

