



Wageningen School  
of Social Sciences

# RISK ANALYSIS AND RISK MANAGEMENT IN AGRICULTURE: UPDATES ON MODELLING AND APPLICATIONS

Miranda Meuwissen - Business Economics, Wageningen University

Yann de Mey - Business Economics, Wageningen University

Fabio Santeramo - Dipartimento di Scienze Agrarie, degli Alimenti e dell'Ambiente,  
Foggia University, Italy

27-31 August 2018

Course organised by the Wageningen School of Social Sciences (WASS),  
Wageningen University

## **Introduction & objectives of the course**

### *Introduction*

The farm sector is affected by a large and changing set of risk sources including more volatile producer prices, unusual weather patterns, upstream and downstream market power along the value chain, increasing dependence on financial institutions, and political risks. This induces the need for (new) risk management tools. Also the Common Agricultural Policy 2020 is considering risk management as an important component of agricultural policy.

### *Objectives*

Participants will learn theories concerning risk analysis and risk coping strategies and will develop proficiency with software to facilitate the initiation of their own research in topics related to risk in agriculture. The course deals with both conceptual and methodological issues.

## **Target group and learning outcomes**

The course is oriented toward PhD students, postdoctoral researchers and others with background in agricultural and applied economics.

After successful completion of this course students are expected to be able to:

- Understand theories underlying risk and risk management decision making.
- Model risk including copulas.
- Critically assess econometric analyses with regard to adoption of risk management tools.
- Model whole-farm risk management decisions.
- Reflect on current (EU) policy developments with regard to risk management.

## **Assumed prior knowledge**

Microeconomic theory at the graduate level such as covered by H.R. Varian in "Microeconomic Analysis" is assumed to be familiar. Econometric theory and applications at the graduate level are required and some exposure to panel data econometrics is desirable.

## **Course fees**

The course fee is € 500. For PhD students of Wageningen School of Social Sciences with an approved TSP the course fee is reduced to € 250. The course fee includes additional training material, coffee/tea, lunches, a social dinner and informal reception.

*For four external PhD candidates we offer the possibility to apply for a reduced fee (€200). To apply, please submit: (1) a one-page letter of motivation including how the topic of the course contributes to your field of research; and (2) a single-page letter of reference from your supervisor. In the selection we favour students of Eastern EU and LDC countries. Documents can be submitted until 20 July 2018 to [miranda.meuwissen@wur.nl](mailto:miranda.meuwissen@wur.nl)*

## **Session Times**

The course consists of theory and method sessions, divided in morning sessions for the presentation of theoretical aspects, afternoon practical sessions to provide exposure to analytical exercises, simulations, and econometric estimations, and one evening session on participants' experiences regarding risk management issues. In particular, the practical will include applications of the theory, computer analyses

with actual data sets, and interpretations in practice. At the end of each practical, answers and reflections will be handed in (four times). Participants receive feedback on the next course day.

#### **Outline of the course in hours**

The course will involve daily sessions, with a 3-hour theory session in the morning, a 3-hour practical session in the afternoon, and one evening session.

#### **Course materials**

Reading materials prepared by the authors will be sent to participants in advance of the course. Articles and other accompanying materials will be distributed during the course.

#### **Requirements and ECTS**

Participants will hand in four practical reports at the end of each practical session, which in turn makes them eligible to obtain the amount of 3 credits (according to ECTS).

## Course Schedule

Day	Lecture (morning)	Practical (afternoon)	Evening
1 (27 August)	<p><b>9.00-10.30:</b> Introduction [MM]</p> <ol style="list-style-type: none"> <li>Risks in agriculture and need to cope with risks</li> </ol> <p><b>10.30-12.00:</b> Uncertainty and risks [FS]</p> <ol style="list-style-type: none"> <li>Utility theory</li> <li>Risk aversion</li> </ol>	<p><b>13.30-16.30</b></p> <ol style="list-style-type: none"> <li>Exercises on Expected Utility Theory, e.g. lotteries, paradoxes, etc. [FS]</li> <li>Exercises on measuring risk attitude (e.g. elicitation via experiments) [FS]</li> </ol> <p><i>Submit practical report</i></p>	<p><b>19.00-</b> <i>Social dinner</i></p>
2 (28 August)	<p><b>9.00-9.30:</b> <i>Feedback on practical</i> [FS]</p> <p><b>9.30-11.00:</b> Price risks [FS]</p> <ol style="list-style-type: none"> <li>Price dynamics</li> <li>Price volatility</li> </ol> <p><b>11.00-12.00:</b> Asymmetric information [FS]</p> <ol style="list-style-type: none"> <li>Moral hazard and adverse selection</li> </ol>	<p><b>13.30-15.30</b></p> <ol style="list-style-type: none"> <li>Econometric models to analyse price dynamics and price volatility [FS]</li> </ol> <p><b>15.30-16.30</b></p> <ol style="list-style-type: none"> <li>Experiments on moral hazard and adverse selection [FS]</li> </ol> <p><i>Submit practical report</i></p>	<p><b>16.30</b> <i>Informal drinks</i></p>
2 (29 August)	<p><b>9.00-9.30:</b> <i>Feedback on practical</i> [FS]</p> <p><b>9.30-10.30:</b> Production risk [YdM]</p> <ol style="list-style-type: none"> <li>Yield distributions</li> </ol> <p><b>10.30-12.00:</b> Dependence of risk [MM]</p> <ol style="list-style-type: none"> <li>Quantifying multivariate sources of risk</li> <li>The nature of dependence</li> </ol>	<p><b>13.30-15.00</b></p> <ol style="list-style-type: none"> <li>Estimation of yield distributions [YdM]</li> </ol> <p><b>15.00-16.30</b></p> <ol style="list-style-type: none"> <li>Tools for modelling stochastic dependence [MM]</li> </ol> <p><i>Submit practical report</i></p>	<p><b>19.00-</b> Participants' experiences with risk management [MM]</p>
4 (30 August)	<p><b>9.00-9.30:</b> <i>Feedback on practical</i> [YdM/MM]</p> <p><b>9.30-12.00</b> Risk coping strategies [YdM]</p> <ol style="list-style-type: none"> <li>On-farm coping strategies</li> <li>Off-farm strategies (insurance, financial products, credit, contracts)</li> </ol>	<p><b>13.30-16.30</b></p> <ol style="list-style-type: none"> <li>Adoption of risk coping strategies (econometric models) [YdM]</li> <li>Interpreting determinants of adoption [YdM]</li> </ol> <p><i>Submit practical report</i></p>	
5 (31 August)	<p><b>9.00-9.30:</b> <i>Feedback on practical</i> [YdM]</p> <p><b>9.30-12.00 :</b> Summary of risk theories Includes Utility theory, Prospect theory, Resilience theory, and Subjective probability theory [MM]</p>	<p><b>13.30-15.00</b></p> <p>Risk management tools of the EU Rural Development Policy: state of affairs and expected developments post 2020 [guest lecture]</p> <p><b>15.00-15.30</b></p> <p>Closing speech: State of the art &amp; outlook [MM]</p>	

FS: Fabio Santeramo, YdM: Yann de Mey, MM: Miranda Meuwissen.

### **Location**

The sessions will be held in building “De Leeuwenborch”, Hollandseweg 1 in Wageningen, The Netherlands. The exact rooms will be announced later.

Morning sessions:

9.00-12.00 Lecture room {to be determined}

Afternoon sessions:

13.30-16.30 Computer room {to be determined}

### **Registration**

Registration is possible electronically via the WASS courses page:

<http://www.wageningenur.nl/en/Education-Programmes/PhD-Programme/Graduate-Schools/Wageningen-School-of-Social-Sciences/Courses/Registration.htm>

The maximum number of participants is set at 20, the minimum at 10.

Please make sure that you provide the most recent contact details so that in case of any changes you will be notified promptly. After your internet registration you will receive a short notification that your name has been registered. At least two weeks before the course you will receive a confirmation about the location and the schedule. WASS will also send an invoice to the address indicated in the registration form.

Please e-mail to [Marcella.Haan@wur.nl](mailto:Marcella.Haan@wur.nl) in case you have not received the second confirmation two weeks before the course.

### **Cancellations**

Cancellations may be made free of charge until 1 month before the start of the course. Cancellation fee of 100 % applies if participants cancel the course less than 1 month prior to the course. The organisers have a right to cancel the course not later than 1 month before the course starts. The participants will be notified of any changes at their e-mail addresses.

Further information

On course content please contact the course organiser, Miranda Meuwissen (BEC). She can be reached through [miranda.meuwissen@wur.nl](mailto:miranda.meuwissen@wur.nl) (+31 317 483857).

On WASS: [www.wageningenur.nl/wass](http://www.wageningenur.nl/wass)

For details about the logistics, accommodation, registration, fees, study materials, etc. please contact

Marcella Haan

Tel +31 317 484126

[Marcella.haan@wur.nl](mailto:Marcella.haan@wur.nl)

Contact addresses:

Wageningen School of Social Sciences

Wageningen University

Hollandseweg 1

6706 KN WAGENINGEN

The Netherlands

### **Useful information on accommodation for participants from outside Wageningen**

#### **Hotels:**

Hof van Wageningen: 62.50 euro for 1 persons room, 70 euros for 2 persons room, both prices are including breakfast;  
[www.hofvanwageningen.nl](http://www.hofvanwageningen.nl)

Hotel de Wageningseberg: 85 euro for 2 persons room, also including breakfast;  
<http://hoteldewageningseberg.nl/en/>

Hotel Nol in 't Bosch: 79 euro for 1 person room, 85 euro for 2 persons room, also including breakfast; <http://www.nolintbosch.nl/>

#### **Bed&Breakfast:**

See: <https://www.bedandbreakfast.nl/bed-and-breakfast/wageningen/netherlands/c2745088>

B& B De Heksenspeeltuin: 30 euro for a 1 person room  
 Address: Eindhovenstraat 15, 6706JA Wageningen  
 Phone: +31 317-418161  
 E-mail: [callyd@zonnet.nl](mailto:callyd@zonnet.nl)  
[Website: www.heksenspeeltuin.nl](http://www.heksenspeeltuin.nl)

Villaria Bed en Breakfast: 39-58 euro for a 1 person room

Address: Nassauweg 21, 6703CG Wageningen  
 Phone: +31 317-419636  
 Email: [info@villaria.nl](mailto:info@villaria.nl)  
 Website: <http://villaria.nl/>  
 Possibilities to rent a bike

Ons Bakhuus Bed & Breakfast: 45 euro for a 1 person room  
 Address: Dolderstraat 64, 6706 JG Wageningen  
 Phone.:+31 317-411994  
 E-mail: [info@onsbakhuus.nl](mailto:info@onsbakhuus.nl)  
[Website: www.onsbakhuus.nl](http://www.onsbakhuus.nl)

De Herbergh Bed & Breakfast: 60 euro for a 1 person room  
 Address: Generaal Foulkesweg 8, 6703 BR Wageningen  
 Phone: +31 317-410747  
 E-mail: [glindenbergh@wanadoo.nl](mailto:glindenbergh@wanadoo.nl)  
[Website: https://www.bedandbreakfast.nl/bed-and-breakfast/wageningen/de-herbergh/3269/](https://www.bedandbreakfast.nl/bed-and-breakfast/wageningen/de-herbergh/3269/)

Toproom B&B: 55 euro for a 1 person room  
 Vossenlaan 17  
 6705 CD Wageningen-Hoog  
 Phone: +31 317-450214  
 E-mail: [info@toproom.nl](mailto:info@toproom.nl)  
[Website: www.toproom.nl](http://www.toproom.nl)  
 Possibilities to rent a bike

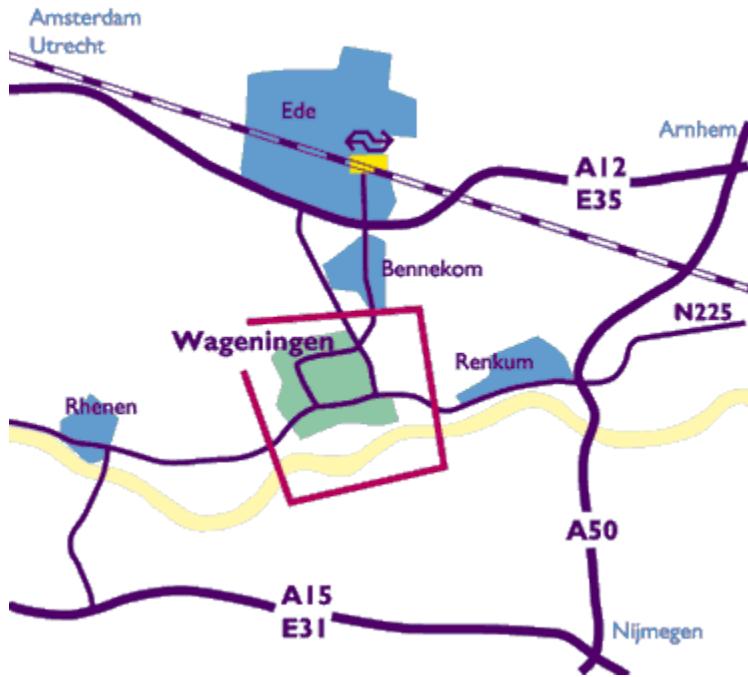
## From Schiphol Amsterdam Airport to Wageningen

At the Airport you can buy a train ticket in the 'arrivals' area by the baggage claims. You will see the sign "Train tickets" near the exit. Then follow the signs 'Nederlandse Spoorwegen' (NS) or 'Trains and busses' to the railway station.

Purchase a one-way ticket to the Ede-Wageningen train station, this will cost € 14,10 (plus a service charge if you buy the ticket at the ticket counter). It is also possible to buy the ticket from the ticket vending machines in the station.

There are direct connections from Schiphol Amsterdam Airport to Ede-Wageningen every 30 minutes. Additionally, twice an hour there is a connecting service from Schiphol to Ede-Wageningen where you have to change trains in Utrecht. The destination boards on the platform will indicate the different stations where the train will stop. Check for the names Ede-Wageningen or Utrecht and board the train and when necessary change in Utrecht. The trip from Schiphol to Ede-Wageningen takes you a bit more than one hour.

For Dutch train connections use [www.ns.nl](http://www.ns.nl), [www.thalys.com](http://www.thalys.com), [www.db.de](http://www.db.de)



The train station is not located directly in Wageningen. This lack is fully compensated by fair means of transportation by buses and taxis. From railway station Ede-Wageningen you can take a taxi (approx.15 min.). Taxis leave at the north side of the station. You can also come by bus: line 52 (direction Wageningen/ Arnhem) departs from the north side of the station or bus line 88 (Valleilijn, direction Wageningen) leaves from the south side of the station. You have to purchase a ticket from the driver in the bus, which will cost about 2 euros.