Description of data collection for CPTs in the Compensation Network.

Variable	Description	References
C1 Non point application	Variable C1 controls which issue the BBN focuses on: herbicides, fungicides or insecticides. Herbicide application is more frequent than that of fungicides and insecticides and leaching to groundwater subsequently more likely; effects on groundwater, aquatic environment, health and socioeconomics related to farming may be rather different for herbicides, fungicides and insecticides.	CPTs: treatment index estimates for different crops; see Rasmussen (2003) Other sources: www.geus.dk www.mst.dk www.dmu.dk
C2 Farming contracts	Variable C2 describes the type of voluntary farming contract. Distinction has been made between "None", "No pesticides" and the more restrictive "MVJ agreement"	CPTs: Rasmussen (2003) and *stakeholder feedback* MVJ: www.fba.dk
C3 Land use	Variable C3 describes the crop rotation and land use pattern (likelihood) for a given area. The following states are incorporated: winter wheat, spring barley, set aside fallow/protection zone, grass, forest, wetland and urban.	CPTs: Changes in land use under farming contracts or animal/vegetable production. Rasmussen (2003)
C4 Farm economics	Variable C4 describes the farmers' financial situations *(dækningsbidrag 2*) with different land uses and farming contract agreements. States: DKK 0, 1000, 1500, 2000, 2500, 3000, 3500 and 4000 per ha/year	CPTs: Based on Rasmussen (2003)
C5 Compensation	Variable C5 describes level of compensation. States: DKK 0, 500, 1000, 1500, 2000, 2500 and 4400 per ha/year	States based on input from end user and stakeholders (Brouwer, 2003)
C6 Pesticide load	Variable C6 describes pesticide application (kg per year) given the state of farming contracts, land use and crop rotation and the type of pesticide used (e.g. herbicides, fungicides or insecticides).	CPTs based on Rasmussen (2003)
C7 Diffuse	Content C7 describes pesticides in shallow groundwater from leaching of non-point application from agricultural fields. Knowledge of used pesticides by farmers in the area from interviews for last 10 years of application and expert knowledge from GEUS: "Varslingssystemet" (early warning system for pesticides). States: "<0.01 μg/l" or "0.01-0.1 μg/l" or ">0.1 μg/l"	Sources: www.geus.dk Www.agrsci.dk Www.dmu.dk VAP: http://pesticidvarsling.dk/index.shtml
C8 Shallow gw quality	Variable C8 describes the content of pesticides in shallow groundwater (from both point and non-point sources). States: "<0.01 μg/l" or "0.01-0.1 μg/l" or ">0.1 μg/l"	Sources: Brüsch et al. (2004) GEUS (2003)
C9 Surface water quality	Variable C9 describes the content of pesticides in surface water from non-point sources: States: "<0.01 μg/l" or "0.01-0.1 μg/l" or ">0.1 μg/l"	Sources: www.dmu.dk

C10 Biological abnormal.	Variable C10 describes the sexual development of frogs based on investigation from the US, where atrazine is the most commonly used herbicide. Results have shown that 10-92% of wild leopard frogs have gonad abnormalities such as retarded development and hermaphrodism. States: “None” or “Abnormal frogs”.	Sources for CPTs: Nature (2002a,b) Other sources: www.dmu.dk www.mst.dk
C11 SFL area	Variable C11 characterises the likelihood of the agricultural area being classified as vulnerable (an SFL area) by Frederiksborg County in terms of groundwater or surface water or for another reason.	www.fba.dk See Chapter 7.
C12 Biodiversity	Variable C12 describes biodiversity as a function of land use. It is assumed that the number of animals is increased when land use changes from winter wheat or barley to fallow land, forest and wetlands. States: “low number”, “medium” and “high number”.	Source: Schou (2003) www.dmu.dk
C13 Animal/vegetable	Variable C13 describe whether an agricultural area is used for animal production (diary products, pigs/ livestock) or to grow cereal/crops (vegetables). States: “Animal production” or “Crop production”.	Rasmussen (2003)
C14 Point sources	Variable C14 describes the number of point sources that impact the content of pesticides in groundwater and surface water. Depends on both pesticide load (C6) and land use (C3), especially urban areas and wither cereals are assumed to give higher intensity of point sources due to both urban sources and accidents during winter period with higher/faster leaching to groundwater. Very uncertain (calculated “backwards” from other input/evidence: C7, C8, C15) States: “none” , “moderate” or “high intensity”	Pesticide point sources have been identified by Frederiksborg County (report not available) www.fba.dk
C15 Surface water qual2	Variable C15 describes the content of pesticides in surface runoff in streams and rivers (from both non-point pollution, wastewater discharges to the creek, wind-driven sources to the creek, etc.) States: “<0.01 μg/l” or “0.01-0.1 μg/l” or “>0.1 μg/l”	Monitoring programme for surface water (rivers): www.dmu.dk
C16 Sand/clay	Variable C16 describes soil conditions which may affect leaching (simplified on the basis of digital soil map). An operational concept for identifying areas where shallow aquifers are vulnerable to pesticide contamination has been developed in a comprehensive project (not ready until the end of May 2004; not implemented in the present BBN for farming contracts). States: Sand or clay.	Soil type (Chapter 7): Danmarks Digitale Jordartskort 1:25.000: www.geus.dk www.kupa.dk
C17 Hunting/fishing	Variable C17 describes the socioeconomical benefit to farmers of hunting/fishing as a result of no pesticide application (proxy willingness to pay per ha: approximately DKK 300 per ha/year). States: DKK 0, 100, 200, 300, 400 per ha/year.	Source: Schou (2003)

C18 Recreational value	Variable C18 describes the socio-economic recreational benefits of land use (e.g. forest assumed to result in a recreational value of DKK 2000 per ha/year based on a benefit transfer analyse with input from house pricing). States: DKK 0, 500, 1000, 1500, 2000, 2500, 3000 per ha/year.	Source: Schou (2003)
C19 Deep gw quality	Variable C19 describes the content of pesticides in deep groundwater of the main aquifer system located 30-50 meter below surface (chalk and sand aquifer with a cover of till and clay). See Chapter 7. States: "<0.01 μg/l" or "0.01-0.1 μg/l" or ">0.1 μg/l"	Source: Monitoring data from Copenhagen Energy and GEUS: GEUS (2003). Brüsch et al. (2004) www.geus.dk
C20 Safe supply	Variable C20 describes the likelihood of being able to abstract clean groundwater (<0.1 μg/l) for the Havelse catchment area in the future (30-50 years). This overall Boolean indicator variable provides an overall estimate based on content of pesticides in groundwater, shallow groundwater and surface water. The first is weighted highest for the total "score". The risk of pollution from surface water can eventually be minimised significantly by moving the wellfield away from the present location in the creek valley. Perception of vulnerability impacts this variable significantly. States: "false" (must be stopped) or "true" (safe drinking can be abstracted).	The variable is based on stakeholder involvement. May be used for benchmarking several of CE's wellfields (55 in northern Zealand).
C21 Remove point sources	Variable C21 describes a possible action for CE focus: a removal of point sources both in urban and rural areas. The action to remove may involve other stakeholders (Frederiksborg County and municipalities or even farmers' organisations): States: "false" (not removed) or "true" (remove).	The variable is based on stakeholder involvement www.fba.dk
C22 Perception of vulnerability	Variable C22 is a new controlling factor that was included after the collection of feedback from stakeholders (Step 7 in the protocol). The farmers' organisations have the attitude that the deep groundwater will not be polluted above the MAC value because the deep aquifer is less vulnerable (compared to average Danish vulnerabilities). Maybe the KUPA project can help clarify this major uncertainty; the limited number of samples is not enough to show which party has the most correct "perceptual model" of this problem. States: "proxy basin" (e.g. based on monitoring data from Denmark) or farmers' organisation (NOLA).	The variable is based on stakeholder feedback. Sources: - GEUS (2003) - Brüsch (2004) - Henriksen and Sonnenborg (2003) www.geus.dk www.kupa.dk www.vandmodel.dk