

WG5 Plant-disease complex interactions

An interpretation of the word **complex** in low-input systems

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INDUSTRIALISED AGRICULTURAL SYSTEMS - monocultures characterised by a lack of abiotic and biotic diversity





Weedy Winter Wheat

LOW INPUT SYSTEMS characterised by abiotic and biotic diversity





Mildew colonies and resistance reactions on organic Triticale

'Ecological Interactions'

- Plant-Plant
- Plant-Pathogen
- Plant-Plant-Pathogen
- Pathogen-Pathogen



'Epidemiological interactions':

- Sowing date/rate
- Nutrient availability
- Variety choice and heterogeneous crops
- Rotation design
- Field geometry





Composite cross population in an organic system

'Evolutionary interactions':

 Understanding of pathogen population dynamics and genetics

• Plant Breeding



All these factors interact, especially in heterogeneous crops







Organic systems pose specific disease risks – seed borne diseases



WG5 - Disease complex interactions:

• What are the important interactions and how deal with complex interactions?

• How deal with seed borne diseases?

• How can we make cropping diversity functional for numerous biotic and abiotic interactions – can these be synergistic?