TOOLS T 13	IPM in winter crop based cropping systems
	Systems

Date (10/02/2012)

WHAT IS…	IPM in winter crop based cropping systems (WCCS) is targeted at **minimising the pest problems** that occur from having a **non-varied crop rotation**, by introducing other crops and techniques in the crop rotation. The estimated pesticide reduction potential is up to 37 % under Danish conditions
WHY	Although winter crop based cropping systems are and have been attractive to many farmers due to **high yields and good fodder production**, continuous growing of winter crops inevitably leads to **increased problems,** especially with weeds. When a resistant weed population has been established, it is very difficult and expensive to get rid of it again. IPM in winter crops is therefore targeted at preventing the build-up of resistant weed populations. There is of course also the problem with resistant diseases (septoria, powdery mildew etc.). The IPM solutions mentioned here are however focused on minimising weed problems.
HOW	Previously, **ENDURE** has worked with re-designed crop rotations for farmers traditionally having a very strenuous winter crop based cropping systems. Crop sequences should ideally have a much stronger mixture of annual crops with varied sowing times (spring versus autumn) and periods with perennial crops to counteract unwanted and severe pest problems, thereby limiting the need for pesticides. However, only **moderate modifications** of WCCS are likely to be accepted by Danish farmers owing to **economic considerations**. These altered systems can form the basis for a discussion with a group of farmers or advisers. For this you can use the ENDURE document (see Sources) and use it during a training session using participatory methods (see Methodology). If it is a small group, it will be a benefit to focus on individual farms, and talk about/calculate the impact on farm economy that changes to the crop rotation will have. We are suggesting two crop sequences that balance crop preferences among farmers and the inclusion of spring-sown

	break crops for impeding severe pest problems, without jeopardising the farm's economy, under Danish conditions: **Sequence I**: W. barley – W. rape – W. wheat – W. wheat + catch crop – S. barley, especially designed to prevent the proliferation of annual grass weeds, cleavers and foliage diseases occurring at low levels. **Sequence II**: W. barley – W. rape – W. wheat - W. wheat + catch crop – S. barley + catch crop/undersown ley – S. barley, especially designed to manage detrimental infestations of annual grass weeds and cleavers. Both sequences produce substantial forage grain and are not expected to threaten the own production of Danish pig producers. The potential **pesticide reduction is up to 37 %** under Danish conditions. The same exercise has been done for French and UK cropping systems. Here the potential pesticide reduction is estimated to be in the range of 62-94 % (France) and 6-20 % (UK), of course depending on the techniques and cropping changes adopted. Read more in the corresponding leaflet **PURE** Continues the work of ENDURE, by testing various IPM solutions in practice in 5 EU countries (UK, DK, DE, PO, FR)
SOURCES	► Find more information in the three leaflets about Winter Crops Based Cropping Systems on ENDURE Publications list: http://www.endure-network.eu/endure_publications/endure_publications2 1:'IPM in Danish winter crops based cropping systems' 2:'Redesigning Cropping Systems in three French regions' 3:'Reducing pesticide input in winter cropping systems in the UK' ► On the ENDURE website with deliverables: http://www.endure-network.eu/endure_publications/deliverables DR1.2 (Best control practices of diseases in winter wheat) DR2.16 (Designing innovative crop protection strategies in arable rotations: Winter Crops Based Cropping Systems) DR2.3 Mechanistic Winter Wheat Simulation model (WHEATPEST) linking European production situations and injury profiles to crop losses DR2.8 ROTATION: Follow-up report on implementation of arable crop system studies. ► On the ENDURE Information Centre: http://www.endureinformationcentre.eu/ Keywords: crop > cereals *or* rape ► On the PURE website: http://www.pure-ipm.eu/taxonomy/term/27